

VERSION
8

CENTRAL POINT PC TOOLSTM FOR DOS

Volume 2

- ▶ ***Central Point Anti-Virus***
- ▶ ***Central Point Backup***
- ▶ ***Central Point Commute***
- ▶ ***Desktop Accessories***

Central Point Software[®] INC

CENTRAL POINT PC TOOLS

Volume 2

Central Point Anti-Virus

Central Point Backup

Central Point Commute

Desktop Accessories


Central Point Software^{INC}

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About Central Point Anti-Virus™

Central Point Anti-Virus provides a comprehensive set of utilities for detecting and cleaning known viruses and for alerting you to any suspicious activity that may indicate infection by unidentified viruses.

Central Point Anti-Virus protects your system in several ways. Memory-resident programs, VSafe or VWatch, provide your first line of defense. You can configure these programs to monitor your system constantly for suspicious activity. If Central Point Anti-Virus detects such activity, it displays a warning message and gives you the opportunity to continue the operation, repair or update the file, restart the system, or cancel the operation. If your system is already infected, you can use Central Point Anti-Virus to detect and clean over 1300 different types of viruses.

What is a Computer Virus?

A computer virus is a program designed to replicate and spread on its own, preferably without your knowing it exists. Like a human body, computer software is vulnerable to infection by viruses. These software viruses, like their organic counterparts, can produce a variety of symptoms in their hosts.

Not all computer viruses cause damage; some are content to multiply without causing obvious changes. More malicious strains can issue random sounds or salute you with off-color screen messages. In extreme cases, files and even entire hard disks can be wiped out.

Viruses can spread in several ways. Some duplicate themselves when an infected file is opened. Others infect the boot sector on your computer's disk drive and then infect other disks as they are accessed.

A virus that has infected the boot sector of a disk can travel on data and program disks. A disk containing a demo program can become infected at one customer site and spread to others before anyone knows it is there. Even some commercial software is not immune.

Your computer can catch a virus anywhere it gets data. The most common source is from floppy disks, including shared software and shrink-wrapped software.

All this doesn't mean you need to be paranoid. It just means you should be aware of the chances of being infected, take steps to prevent it from happening, and be prepared with regular backups in case something does go wrong.

Types of Viruses

For your understanding, each virus is classified according to how the virus travels from system to system and how it infects the computer. Recently, two new strains of viruses have surfaced: stealth viruses and polymorphic viruses. Stealth and polymorphic viruses can be either boot sector viruses or file infector viruses.

- **Stealth viruses:** This term identifies a type of virus that actively conceals itself from detection and defends itself against attempts to analyze or remove it. For example, a stealth virus can infect a program, adding bytes to the infected file, and then subtract the directory entry of the infected file by the same number of bytes when other programs attempt to read it. This gives the impression that the file's size has not changed.
- **Polymorphic viruses:** A polymorphic virus mutates and changes its signature, or identifiable code, with each infection. The most recent emergence of this threat (viruses created using the Mutation Engine) contain code that can be incorporated into any existing or future virus, allowing it to create an infinite variety of original encryption methods each time.
- **Boot sector infector:** There are fewer viruses of this type, but they are the most common because they are the easiest to spread. A boot sector virus replaces the disk's original boot sector with its own code so that the virus is always loaded into memory before anything else. Once in memory, the virus can render your startup disk unusable or spread to other disks.
- **File infector:** File infector viruses add virus code to an executable file (such as .COM, .EXE, .SYS), so that the virus is executed whenever the program is run. Once the virus is executed, it spreads to other executable files. Most file infectors remain in memory until you turn off or restart your computer. In memory, they continue to infect other programs, interfering with your normal operations.

- **Trojan horse:** This type of virus comes disguised as a legitimate program. Instead of getting a useful utility or fun game when you run these programs, your computer becomes infected with or damaged by a virus. Trojan horses are much more apt to destroy files or damage disks than other viruses. Files or disks infected with a Trojan horse may not be recoverable.

For information on viruses and how they work, see the information available from the Virus List in the program.

Central Point Anti-Virus Components

Central Point Anti-Virus has several components that work together as a complete virus-protection team for your computer.

Central Point Anti-Virus detects known viruses by employing the list of recognized viruses contained in the Virus List of CPAV.EXE when scanning your system. Frequent signature updates for virus detection keep this list current. VWatch or VSafe, residing in memory, check for the presence of known viruses at all times, so you have little chance of unknowingly infecting your system. If your system has a virus, Central Point Anti-Virus displays a message and the program or disk operation is halted, allowing you the opportunity to clean the virus.

CPAV.EXE and VSafe also defend against unknown viruses by alerting you when executable files and system files change, which can indicate the presence of a virus. BootSafe, run from your AUTOEXEC.BAT file, looks for boot sector viruses.

The major components are described in the following list.

- **Central Point Anti-Virus** (CPAV.EXE) is the main virus scanning program. See the *Using the Express Menu* or *Using Full Menus* chapters for details.
- **VSafe** is a comprehensive memory-resident, virus-protection utility. See the *Ongoing Virus Protection* chapter for details.
- **VWatch** is a smaller memory-resident, virus-protection utility. If memory is at a premium on your computer, use VWatch instead of VSafe. See the *Ongoing Virus Protection* chapter for details.
- **BootSafe** is a utility that guards your computer against infection by viruses that infect the boot sectors or partition tables of disks. See the *Ongoing Virus Protection* chapter for details.
- **TSR Manager** is a Windows program that allows Central Point DOS TSRs (memory-resident programs) to display prompts and messages within Windows. The TSR Manager handles VSafe and VWatch prompts. See the *Ongoing Virus Protection* or *TSR Manager* chapter for details.

Guidelines for Defending Against Infection

To lessen your chances of infection and to be prepared if one does occur, install Central Point Anti-Virus and take these precautions:

- ▶ Create an emergency disk so you can restore the boot sector, partition table, and CMOS memory if a virus destroys them. See the *Installing PC Tools in Part 1 Getting Started* or the *Build Emergency Disk* chapter in *Part 3 Data Recovery and System Utilities* in Volume 1 for details.
- ▶ Install the boot sector and partition table protection utility, BootSafe, on all bootable hard disks and add the line BOOTSAFE to the AUTOEXEC.BAT file. See the *Ongoing Virus Protection* chapter for details.
- ▶ Provide ongoing virus protection by using VSafe or VWatch, the memory-resident, anti-virus utilities included with Central Point Anti-Virus. See the *Ongoing Virus Protection* chapter for details.
- ▶ Configure the scheduler to do a daily anti-virus scan on your local hard drives.
- ▶ Run Central Point Anti-Virus regularly to scan
 - the hard disks in your computer for viruses
 - each floppy disk you use in your computer
 - files you download from a bulletin board service or copy from someone's floppy disk.
- ▶ Perform backups of your system on a regular basis with a backup program such as Central Point Backup™, which contains its own internal anti-virus protection. Frequent backups will protect you from data loss caused by a virus or other mishaps.
- ▶ Use write-protect tabs on floppy disks whenever you can. If you update information on a floppy disk infrequently, write-protect it. (Be sure the write-protect tab is black or silver; do not use transparent tape.) If a virus cannot write itself onto the disk, it cannot infect it.

Keeping Central Point Anti-Virus Up-To-Date

Central Point Anti-Virus detects both “known” and “unknown” viruses. An unknown virus is defined as one that has not been identified by the Central Point Software development team. If Central Point Anti-Virus detects suspicious activity on a disk or suspicious changes to a file, it warns you that an unknown virus may be present.

New viruses are discovered on a regular basis. Central Point Software provides you with maximum protection by offering a Virus Protection Service plan to keep you informed of the latest virus information.

- A 24-hour Virus Hotline provides current information about new viruses, including signatures you can add to your copy of Central Point Anti-Virus to update its detection only capabilities. See the *Central Point Software Registration and Support Card* for more information.
- A quarterly mailing will be sent to the address on your registration card. This newsletter contains notification of viruses discovered during the last quarter and information about available software upgrades.
- The Continuous Anti-Virus Protection Service (CAP) is an easy way to receive program updates on a regular basis. With this subscription service, you receive four updates, which consist of a complete set of new disks, full detection and cleaning capabilities for newly discovered viruses, and software enhancements that continue to make Central Point Anti-Virus more powerful.
- The Central Point Software Bulletin Board and the Central Point Software Forum on CompuServe contain information on new viruses along with files you can download to your computer to automatically update the Central Point Anti-Virus program’s virus-detection capability. See the *Central Point Software Registration and Support Card* for more information.
- One free virus-protection software update will be sent to you if you send us the completed coupon enclosed in your package. Shipping and handling charges are additional. Virus-protection updates are offered quarterly.

The Central Point Anti-Virus program lets you use the information you obtain from these sources to update its virus protection abilities. See “Updating the Virus List” in the *Using Full Menus* chapter for complete information on this feature.

For more detailed information on support services available for Central Point Anti-Virus, see the *Central Point Software Registration and Support Card* enclosed in this package.

Using the Express Menu

Central Point Anti-Virus has two types of menus: the Express Menu and Full Menus. This chapter guides you through the use of the Express Menu. For information on using the features of Full Menus, see the *Using Full Menus* chapter.

Here's what you'll find in this chapter:

- **Starting Central Point Anti-Virus with the Express Menu** explains how to start Central Point Anti-Virus in its Express Menu mode.
- **Detecting Viruses** explains how to be notified each time a virus is found during a scan.
- **Cleaning Viruses** explains how to scan and clean viruses automatically without notification.
- **Selecting a New Drive** explains how to select another drive for scanning.
- **Switching to Full Menus** explains how to enter Full Menus mode.
- **Exiting the Program** explains how to quit.

Starting Central Point Anti-Virus with the Express Menu

- ▶ Choose **Anti-Virus** from the Tools menu in PC Tools Desktop.

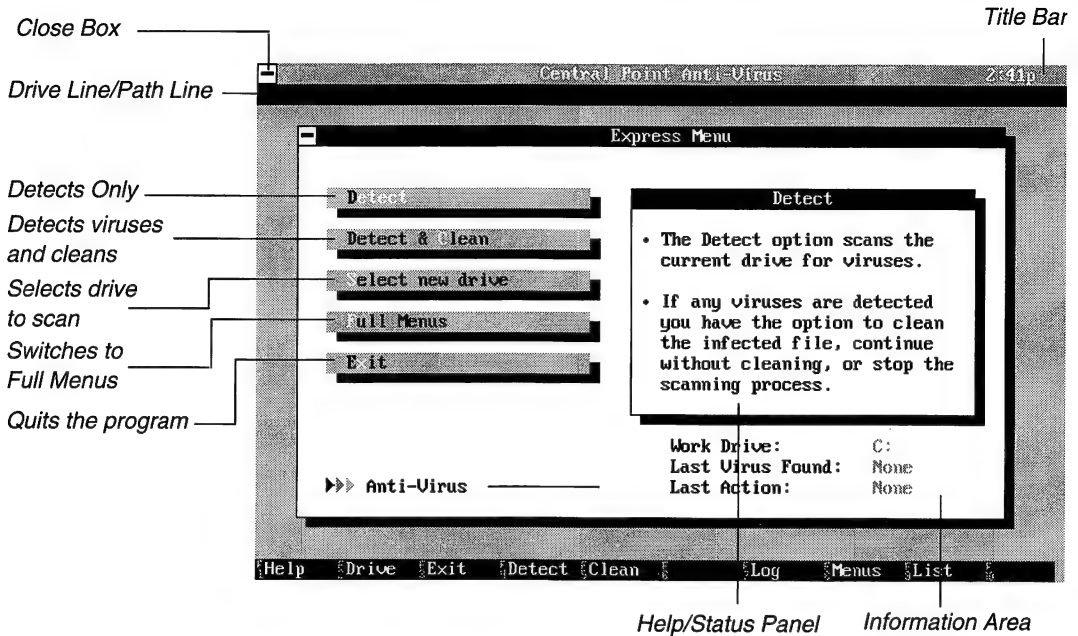
or

From DOS, type

CPAV /E

If a password has been assigned, enter it and choose **OK**.

The Express Menu window appears.



What You See

Starting at the top, the Central Point Anti-Virus Express Menu window contains these elements:

Close Box: Clicking this with the mouse displays the System Control menu, which includes an option to close (exit) the program.

Title Bar: The title bar contains the close box at the far left of the bar, the program name, and the time at the far right.

Drive Line: When you choose **Select New Drive**, the drive line displays the available drives in the system with the current drive highlighted.

Path Line: Shares its location with the drive line. When you choose **Detect** or **Detect & Clean**, the path line indicates the directory path of each file as it is scanned.

Detect button: Scans the current work drive for viruses.

Detect & Clean button: Scans the current work drive for viruses and removes (cleans) any viruses it finds. If the **Detection Only** option is set from Full Menu, this button will not be available for selection.

Select New Drive button: Allows you to change the drive to be scanned. When you choose this button, the drive line appears.

Full Menus button: Switches to Full Menus, where you can set and control extensive configuration options. If a password was set, you are prompted to enter it before you can move to Full Menus. (See the *Using Full Menus* chapter for more information.)

Exit button: Leaves the Central Point Anti-Virus program and returns to DOS.

Help/Status Panel: Provides information on the available actions and status of scanning operations.

Information Area: Displays the following information about the selected drive.

Work Drive: Indicates the disk drive selected for scanning.

Last Virus Found: Displays the name of the last virus detected, if any, on the selected work drive.

Last Action: Shows you the last action taken in the program (cleaned, deleted, renamed, received verify error, immunized, or disimmunized) on files on the selected work drive.

Detecting Viruses

If you suspect your system may be infected with a virus, and you want to see a dialog box identifying each virus as it is found, use the Detect feature.

NOTE You can perform a quick scan of specified files using PC Tools Desktop. You do this by using a mouse to select the files you want to scan and dragging them to the Menu window, then dropping them on the Central Point Anti-Virus entry. For more information about drag and drop, see Part 2 PC Tools Desktop in Volume 1.

If you want Central Point Anti-Virus to clean viruses as it finds them, without notifying you, follow the steps in "Cleaning Viruses."

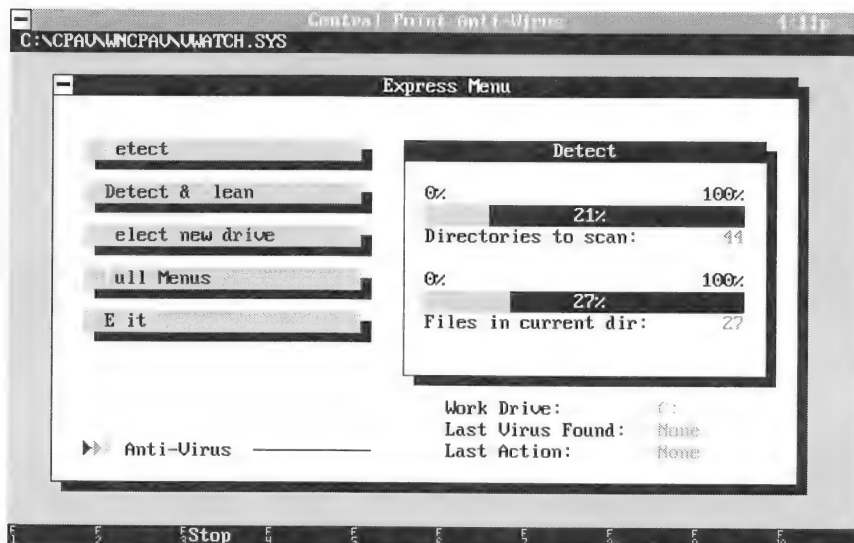
- Choose **Detect** or press **F4**.

The message, "Scanning memory for viruses" appears. This indicates that Central Point Anti-Virus is scanning the system memory for specific types of viruses, specifically, boot sector viruses and stealth viruses. These viruses reside in memory, waiting for you to perform a specified action, for example, accessing a floppy disk or running an executable program.

NOTE You can press **Esc** or **F3** at any time to stop the scan.

After scanning memory for viruses, the information area shows two progress bars, with the number and percentage of directories and files remaining to be scanned. The path line lists each directory and file as it is scanned.

The first time you perform a virus-detection scan after installing the software or a new signature file, the process is slower than subsequent scans because Central Point Anti-Virus creates the CHKLIST.CPS file in each directory the during the first scan. All later scans are faster because the file is already there.



- ▶ You can pause the scan at any time by pressing **[Esc]**.
- or
- ▶ To choose another drive to scan, press **[Esc]** to pause the scan, then press **[F2]** or choose **Select New Drive** and select a drive to scan.

For example, if Central Point Anti-Virus starts to read a network drive and you realize you really wanted it to scan your local drive C, press **[Esc]** to pause the scan, press **[F2]**, and press **[C]** on the keyboard or click drive C in the drive line to scan that drive.

If Central Point Anti-Virus finds a virus, it sounds an alarm and displays a dialog box with the name of the virus and options to Clean or Delete the file, Stop the scan, or Continue scanning with no change. For more information about these options, see "What Happens When Central Point Anti-Virus Finds a Virus?" in the *Troubleshooting Central Point Anti-Virus* chapter.

After the selected drive, directories, or files have been scanned, the Viruses Detected and Cleaned window appears, showing you how many and what type of disks and files were checked for viruses, how many infections were found, and how many files or disks were cleaned of infection.

When you are finished looking at the information, choose **OK** to return to the main window. Central Point Anti-Virus saves a summary of the information automatically in the Activity Log. For instructions on viewing the Activity Log, see "Using the Activity Log" in the *Using Full Menus* chapter.

Cleaning Viruses

Start your computer from a virus-free, write-protected floppy disk. Then, to clean viruses automatically as they are found, without notification, use the Detect & Clean feature.

If you suspect your system may be infected with a virus, and you want to see a dialog box identifying each virus as it is found, use the detect feature. Follow the instructions in "Detecting Viruses" earlier.

If the Detection Only option has been set from Full Menus, this feature will not be available.

- ▶ Choose **Detect & Clean** or press **(F5)**.

The message, "Scanning memory for viruses" appears. This indicates that Central Point Anti-Virus is scanning the system memory for specific types of viruses, specifically, boot sector viruses and stealth viruses. These viruses reside in memory, waiting for you to perform a specified action, for example, accessing a floppy disk or running an executable program.

The first time you perform a virus-detection scan after installing the software or a new signature file, the process is slower than subsequent scans because Central Point Anti-Virus creates the CHKLIST.CPS file in each directory the during the first scan. All later scans are faster because the file is already there.

After scanning memory for viruses, the Information area shows two progress bars with the number and percentage of directories and files remaining to be scanned. The path line lists each directory and file as it is scanned. The information area of the window shows viruses as they are found and cleaned. The program, however, does not stop when it finds viruses.

- ▶ You can pause the scan at any time by pressing **(Esc)**.

or

- ▶ To choose another drive to scan, press **(Esc)** to pause the scan, then press **(F2)** or choose **Select New Drive** and select a drive to scan.

For example, if Central Point Anti-Virus starts to read a network drive and you realize you really wanted it to scan your local drive C, press **(Esc)** to pause the scan, press **(F2)**, and press **(C)** on the keyboard or click drive C in the drive line to scan that drive.

If Central Point Anti-Virus detects a virus, it cleans (removes) it automatically and updates the Last Action Taken information.

After the selected drive, directories, or files have been scanned, the Viruses Detected and Cleaned window appears, showing you how many and what type of disks and files were checked for viruses, how many infections were found, and how many files or disks were cleaned of infection.

When you are finished looking at the information, choose **OK** to return to the main window. Central Point Anti-Virus saves a summary of the information automatically in the Activity Log. For instructions on viewing the Activity Log, see “Using the Activity Log” in the *Using Full Menus* chapter.

Selecting a New Drive

1. Choose **Select new** drive or press **F2**.

The drive line appears at the top-left corner of your screen, showing the drives available.

2. Select the drive you want to scan from the drive line.



- ▶ Click the drive icon with a mouse.

or



- ▶ Press the *drive letter* (for example, **D** for drive D).

The Information area shows the drive you selected as the work drive.

Switching to Full Menus

Most of the time, the functions available in the Express Menu will suit your needs. Additional features available in Full Menus allow you to

- Select specific directories and files to scan
- Immunize files against virus attacks
- Add new virus signatures to the program
- View, print, and delete activity logs
- Modify scanning options
- View and print the Virus List
- Change a customized alert message
- Change the password

To switch to Full Menus,

- ▶ Choose **Full Menus** or press **F8**.

If a password has been assigned, a dialog box requests it. Type the password and choose **OK** to move to Full Menus.

For information on Full Menus features, see the *Using Full Menus* chapter next.

Exiting from the Program

1. Exit from the program.

A confirmation dialog box appears. If you made any configuration changes, the Save Configuration option is selected.

2. Choose **OK**.

If a virus is found during a scan, Central Point Anti-Virus asks if you want to reboot rather than exit to DOS.

- ▶ Choose **Reboot** to clear any viruses that may remain in memory.

Using Full Menus

The Central Point Anti-Virus full menus allow you more control over configuration options and allow you to perform more sophisticated virus-cleaning and protection functions. This chapter describes these functions.

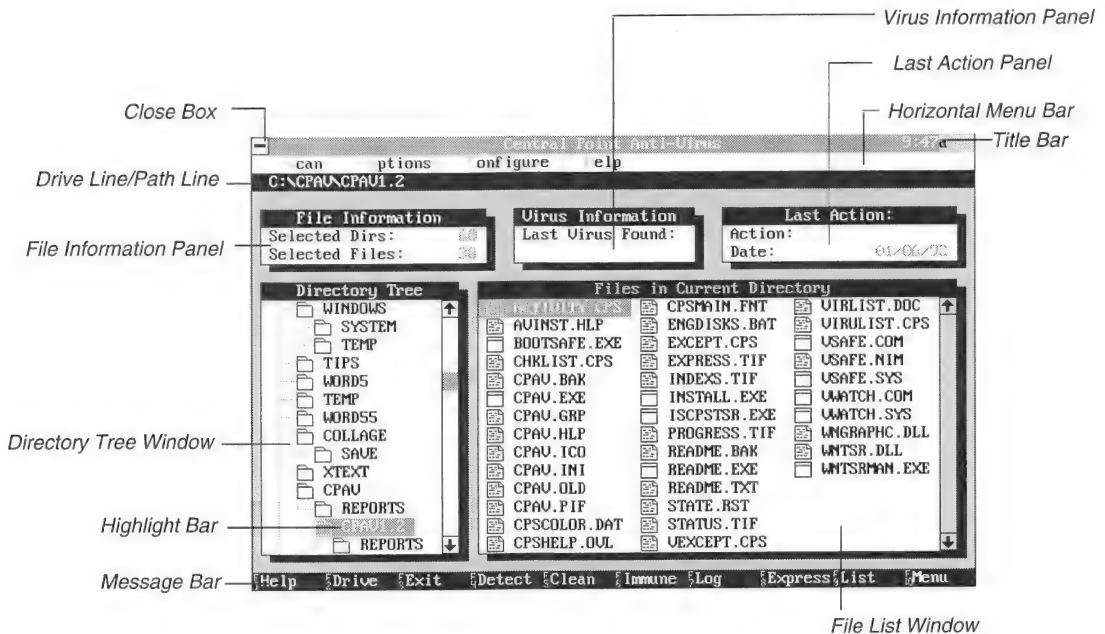
Here's what you'll find in this chapter:

- **Starting Central Point Anti-Virus and Entering Full Menus** explains how to start Central Point Anti-Virus in full menus.
- **Detecting Viruses** explains how to be notified each time a virus is found during a scan.
- **Cleaning Viruses** explains how to scan and automatically clean any viruses without notification.
- **Immunizing Your Files** explains how to immunize your files so that they do not become infected again.
- **Removing File Immunization** explains how to remove immunization from files.
- **Changing the Work Drive** explains how to choose a different drive for scanning, cleaning, or immunizing.
- **Setting Scanning Options** describes the protection options you can change.
- **Checklist Files and Checksums** explains checklist files and how checksums flag suspicious activity that may indicate the presence of an unknown virus.
- **Setting Verification Exceptions** shows you how to add frequently changing files to a list so they are ignored when file integrity is checked.
- **Setting Immunization Exceptions** shows you how to add frequently changing files and files that cannot be immunized safely to a list that is ignored when you immunize files.
- **Scheduling Automatic Detection and Cleaning** explains how to schedule periodic, unattended virus scans.
- **Using the Activity Log** describes the information stored in the activity log and how to view and print it.
- **Infection Reports** describes the information saved when the program finds a virus and explains how to view and print it.

- **Report Files** describes the information saved when the Create Report option is selected and explains how to view and print it.
- **Using the Virus List** provides specific information about the viruses Central Point Anti-Virus detects.
- **Updating the Virus List** explains how to upgrade Central Point Anti-Virus's detecting abilities.
- **Changing the Alert Message** explains how to add customized messages to the virus alert.
- **Password Protection** explains how to password-protect several features of the program.
- **Virus Notification on Networks** explains how to have a message broadcast on a network.
- **Switching to Express Menu** explains how to enter the Express mode.
- **Saving Configuration Changes** explains how to save any changes you made.

Starting Central Point Anti-Virus and Entering Full Menus

1. From DOS, type
CPAV
2. If the Express Menu appears, choose **Full Menus**.
or
If a password has been assigned, enter it and choose **OK**.
The Full Menus window appears.



What You See

Starting at the top, the Central Point Anti-Virus Full Menus window shows the following items:

Close Box: Clicking this with the mouse or pressing **[Alt] [Spacebar]** displays the System Control menu, which includes an option to exit the program.

Title Bar: Contains the close box at the far left of the bar, the program name, and the time at the far right.

Horizontal Menu Bar: Where all commands are selected. The names of the pull-down menus shown here are Scan, Options, Configure, and Help.

Drive Line: Indicates the available drive icons in the system with the current drive icon highlighted. The drive line appears when you choose Change Work Drive from the Configure menu, or press **[F2]**.

Path Line: Shares its location with the drive line and shows the current drive and directory. When a scan is in progress, the path line indicates the directory path of the file being scanned.

File Information Panel: Shows the number of selected directories and files on the current work drive. Selected directories and files appear in high-intensity letters on the screen. The default, which you change by selecting directories and files or by setting the Check All Files option, is for all directories and files to be selected. As Central Point Anti-Virus scans files in directories, the information in this panel changes to reflect the number of files and directories remaining to be scanned.

Virus Information Panel: Indicates the name of the last virus found during a detect or clean operation, if any.

Last Action Panel: Tells you what action was most recently taken in Central Point Anti-Virus (cleaned, deleted, renamed, verify error, immunized, or disimmunized) and the date that action occurred.

Directory Tree Window: Lists the directories available on the current work drive. You can select (or tag) a directory to scan from this window.

File List Window: Lists the files found in the selected directory. You can select (or tag) individual files for scanning, cleaning, immunizing or to remove immunization. As you select different directories in the Directory Tree window, the files in the selected directory are displayed in the File List window.

Highlight Bar: Acts as a cursor in the Directory Tree and File List windows. When the highlight bar is positioned on a directory or file, you can select or deselect it. Check your monitor's contrast and brightness controls to make sure they are set properly so you can see the highlighting.

Message Bar: Displayed at the bottom of the screen, normally show the function keys available to execute associated commands. When you pull down a menu, this bar displays brief descriptions of the currently highlighted menu item. You can choose the function keys by clicking on them with the mouse or pressing the correct function key on your keyboard. These are the commands and their function keys:

Function Key	Description
F1	Help
F2	Drive (Change current work drive)
F3	Exit Central Point Anti-Virus
F4	Detect (Scan for viruses)
F5	Clean (Detect and clean viruses)
F6	Immune (Immunize files)

Function Key	Description
F7	Log (Display the activity log)
F8	Express (Switch to Express Menu)
F9	List (Display virus list)
F10	Menu (Activate the Horizontal Menu Bar)

Detecting Viruses

The safest way to ensure that your system is not infected is to start your computer from a virus-free, write-protected floppy disk and then run Central Point Anti-Virus to scan for viruses.

If you suspect that your system is infected with a virus, and you want to see a dialog box identifying each virus as it is found, use the Detect feature.

If you want Central Point Anti-Virus to clean viruses as it finds them, without pausing, follow the steps in "Cleaning Viruses."

NOTE *If the Detection Only option is selected, scanning operations other than detect will not be available. See the "Setting Scanning Options" section in this chapter for information on the Detection Only and other options.*

For complete information about selecting and deselecting files and directories, see the *Working in the PC Tools Environment* in Part 1 of Volume 1.

1. Select the files you want to scan.
2. Choose **Detect** from the Scan menu or press **F4**.

The message, "Scanning memory for viruses" appears. This indicates that Central Point Anti-Virus is scanning the system memory for specific types of viruses, specifically, boot sector viruses and stealth viruses. These viruses reside in memory, waiting for you to perform a specified action, for example, accessing a floppy disk or running an executable program.

The first time you perform a virus-detection scan after installing the software or a new signature file, the process is slower than subsequent scans because Central Point Anti-Virus creates the CHKLIST.CPS file in each directory the during the first scan. All later scans are faster because Central Point Anti-Virus does not have to create a new CHKLIST.CPS file each time; it adds any new information to the existing file.

The path line shows the directory path as files are scanned. If you are scanning the entire drive, the highlight bar moves through both the Directory Tree window and the File List window as each directory and file is scanned.

If you are scanning a single directory, the highlight bar moves through the File List window as each file is scanned.

You can pause the scan at any time by pressing **[Esc]** or by clicking on the **[F3]** button at the bottom of the screen.

When Central Point Anti-Virus finds a virus, it sounds an alarm and displays a dialog box with the name of the virus and options to Clean or Delete the file, Stop the scan, or Continue scanning with no change. For more information about these options, see “What Happens When Central Point Anti-Virus Finds a Virus?” in the *Troubleshooting Central Point Anti-Virus* chapter.

After the selected drive, directories, or files have been scanned, the Viruses Detected and Cleaned window appears, showing you how many and what type of disks and files were checked for viruses, how many infections were found, and how many files or disks were cleaned of infection.

When you finish looking at the information, choose **OK** to return to the main window. Central Point Anti-Virus saves a summary of the information automatically in the Activity Log. For instructions on viewing the Activity Log, see “Using the Activity Log.”

Cleaning Viruses

Start your computer from a virus-free, write-protected floppy disk. Then, to automatically clean viruses as they are found, without pausing, use the Clean feature.

If you suspect your system may be infected with a virus, and you want to see a dialog box identifying each virus as it is found, use the Detect feature. See the instructions in “Detecting Viruses” earlier in this chapter.

If the Detection Only option has been set, this feature will not be available.

For complete information about selecting and deselecting files and directories, see the *Working in the PC Tools Environment* in Part 1 of Volume 1.

1. Select the files you want to scan.
2. Choose **Clean** from the Scan menu or press **[F5]**.

The message, “Scanning memory for viruses” appears. This indicates that Central Point Anti-Virus is scanning the system memory for specific types of viruses, specifically, boot sector viruses and stealth viruses. These viruses reside in memory, waiting for you to perform a specified action, for example, accessing a floppy disk or running an executable program.

The first time you perform a virus-detection scan after installing the software or a new signature file, the process is slower than subsequent scans because Central Point Anti-Virus creates the CHKLIST.CPS file in each directory the during the first scan. All later scans are faster because the file is already there.

The path line shows the directory path as files are scanned. If you are scanning *the entire drive*, the highlight bar moves through both the Directory Tree window and the File List window as each directory and file is scanned. If you are scanning *a single directory*, the highlight bar moves through the File List window as each file is scanned.

You can pause the scan at any time by pressing **[Esc]** or by clicking the F3 button at the bottom of the screen.

Central Point Anti-Virus automatically removes any viruses it finds. The Virus Information panel indicates viruses as they are found. If an unknown virus is suspected, or a file is damaged beyond repair by a virus, a message appears. See the *Troubleshooting Central Point Anti-Virus* chapter for information on messages.

After the selected drive, directories, or files have been scanned, the Viruses Detected and Cleaned window shows how many and what type of disks and files were checked for the presence of viruses, how many infections were found, and how many files or disks were cleaned of infection.

When you are finished looking at the information, choose **OK** to return to the main window. Central Point Anti-Virus saves a summary of the information automatically in the Activity Log. For instructions on viewing the Activity Log, see "Using the Activity Log" later in this chapter.

Immunizing Your Files

Central Point Anti-Virus also immunizes executable files against virus infection. Once immunized, a file has its own anti-virus capabilities, allowing it to notify you of any change that may occur. If a change is detected, the immunized file can "heal" itself, returning to its original state.

Immunization adds less than 1K to a file, but does not occupy any space in system memory.

Many programs these days have anti-virus checksums built in, so this feature is not necessary, and when used on these types of files, causes an error message. Rarely, a program may not function correctly after it has been immunized. If this should occur, remove the file immunization, following instructions later in this chapter, and add the file to the Immunization Exceptions list. For a list of files that cannot be immunized, see "Setting Immunization Exceptions" later in this chapter.

When you attempt to immunize files that cannot be immunized, Central Point Anti-Virus displays a message informing you. From this dialog box, you can choose **Add** to add the file to the Immunization Exceptions list. Once added to this list, Central Point Anti-Virus will not attempt to immunize the file the next time you choose Immunize from the Scan menu.

Once a file is immunized, it checks itself for virus infection whenever it is executed. If an infection is identified or if any change in the integrity check is noticed, a warning message similar to the following gives you the options of reconstructing the original file, continuing to execute the program, or returning to DOS without running the program.

```
Central Point Anti-Virus (c) 1992 CPS
Self Integrity Check warning - File was changed!
Choose an option:
[R]   Self Reconstruction
[C]   Continue Execution
[E]   Exit to DOS
Press R, C or E:
```

If you see this message, press **[R]** to restore the file to its original state, then run Central Point Anti-Virus to scan for viruses on the entire disk.

Immunizing a Directory or File

For complete information about selecting and deselecting files and directories, see the *Working in the PC Tools Environment* in Part 1 of Volume 1.

1. Select a file to immunize.
2. Choose **Immunize** from the Scan menu or press **[F6]**.

If you select the Detection Only option, the Immunize option on the Scan menu is not available. See "Setting Scanning Options" later in this chapter for information on setting the Detection Only and other options.

The path line shows the directory path as files are immunized. If you immunize the entire drive, the highlight bar moves through both the Directory Tree and the File List windows as each directory and file is immunized. If you immunize a single directory, the highlight bar moves through the File List window as each file is immunized.

You can pause the immunization process at any time by pressing **[Esc]** or by clicking on the **[F3]** button at the bottom of the screen.

When Central Point Anti-Virus finishes immunizing the selected drive, directories, or files, a dialog box appears, showing how many and what type of disks and files were checked and immunized.

When you finish looking at the report, choose **OK** to return to the main window. Central Point Anti-Virus saves the report summary information automatically in the Activity Log. For information on the Activity Log, see "Using the Activity Log" later in this chapter.

Removing File Immunization

You can remove immunization from a file or group of files at any time. Removing immunization is useful in these situations:

- You need to create free space on the disk. Immunization adds about 1K of space to each file. To reclaim this space, you can remove immunization.
- Files contain their own immunization code. Many programs have built-in virus protection. When these files are immunized with Central Point Anti-Virus, their built-in protection may generate an error message. Removing immunization is necessary before you can run such programs. When you discover files that shouldn't be immunized, you can add them to an exceptions list by using **Immunization Exceptions** on the Configure menu. For more information on Immunization Exceptions, see "Setting Immunization Exceptions" later in this chapter.

For complete information about selecting and deselecting files and directories, see the *Working in the PC Tools Environment* in Part 1 of Volume 1.

1. Select a file from which to remove immunization.
2. Choose **Remove Immunization** from the Scan menu.

If you selected the Detection Only option, the Remove Immunization option on the Scan menu will not be available. Follow the instructions in "Setting Scanning Options" later in this chapter to change the Detection Only and other options.

The path line shows the directory path as immunization is removed from files. If you are removing immunization from the entire drive, the highlight bar moves through both the Directory Tree and the File List windows as each directory and file is immunized. If you remove immunization from a single directory, the highlight bar moves through the File List window as immunization is removed from each file.

You can pause the process of removing immunization at any time by pressing **[Esc]** or by clicking the F3 button at the bottom of the screen.

When immunization is removed from the selected drive, directories, or files, the Files Immunized window shows how many and what type of disks and files had immunization removed.

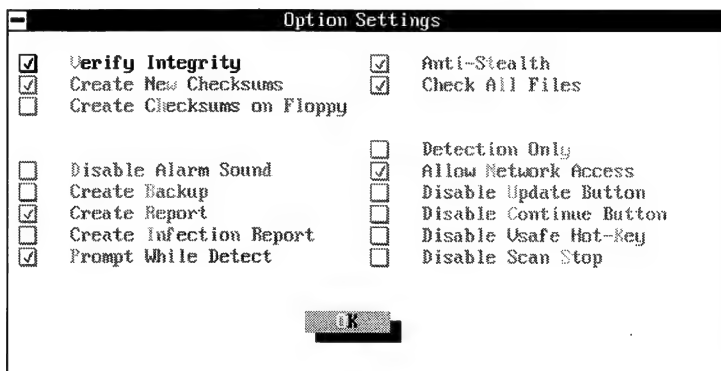
Changing the Work Drive

1. Choose **Change Work Drive** from the Configure menu or press **(F2)**.
2. Select a new drive from the drive line.

The Directory Tree and File List windows change, listing the contents of the drive you selected.

Setting Scanning Options

The Central Point Anti-Virus program has a variety of options you can set to tell it how to function while scanning for viruses. The default values are set for each option when you install Central Point Anti-Virus on your computer. The following procedure describes the scanning options available and the actions they cause when turned on. You can change these option settings at any time. The Set Options command can be password-protected to prevent users from changing these options.



1. Choose **Set Options** from the Options menu.
If a password has been assigned, enter it and choose **OK**.
The Option Settings dialog box appears.

2. Select the options you want to use and choose **OK**.

Options with a check mark next to them are currently turned on. Selecting an option with a check mark next to it turns off that option. Selecting an option without a check mark turns it on.

The following list shows the options available and the actions they cause when turned on.

Verify Integrity: Compares files to the checklist created by the Create New Checksums option and alerts you of any changes. This comparison helps isolate changes that new, unknown viruses may have made to executable and system files.

If Verify Integrity is on when you perform a Detect scan, Central Point Anti-Virus displays a Verify Error warning each time it finds an executable or system file that has changed.

When you select this option along with the Anti-Stealth option, Central Point Anti-Virus uses a special, low-level checking routine to enhance the detection of the Stealth family of viruses. If you turn off Verify Integrity, the Anti-Stealth option is also turned off. The default for Verify Integrity is on.

Anti-Stealth: Works with the Verify Integrity option. When you select this option, Verify Integrity is also turned on, and Central Point Anti-Virus uses a special, low-level checking routine to detect stealth viruses no matter where they try to hide. The default for this option is off.

Stealth viruses are particularly tricky in their attempts to hide from detection, infect the system, and then spread to other executable files. For maximum protection against stealth viruses, leave both the Anti-Stealth and Verify Integrity options turned on.

NOTE *Once checksums are created on a volume, subsequent scans of the disk compare files against their checksums and attempt to update the checksums. When scanning volumes that have been compressed with disk-compression utilities, such as SuperStor from AddStor, or drives that have been write-protected with PC Tools Data Monitor, leave the Anti-Stealth option off. On such compressed volumes, files are dynamically compressed and decompressed, which results in their checksums not matching. You will get unreliable verification errors.*

Create New Checksums: Creates a checklist file called CHKLIST.CPS for each directory as it is scanned. Use this option to take advantage of the Verify Integrity feature, the Central Point Anti-Virus defense against unknown viruses. The checklist file contains a database of statistics about each executable file in the directory, including information about each file's size, attributes, date, time, and checksum. (A *checksum* is a numeric value derived from a file, used to identify the file.) On subsequent scans, these statistics verify that the files have not changed. (A changed file could indicate infection by a virus, since executable files normally do not change.)

If a CHKLIST.CPS file already exists for the directory, any files you add to the directory are then added to the CHKLIST.CPS file after a scan or when VSafe is resident. Also, any files that you remove from the directory are removed from the CHKLIST.CPS file. The default for this option is on.

Check All Files: Checks all files for viruses. When turned off, only executable files will be checked. Executable files have the following extensions: .EXE, .COM, .DLL, .OVY, .OVL, .OVR, .OV?, .SYS, .BIN, .APP, .PGM, .PRG, .DRV, .386, .FON, .ICO, and .CMD. The default for this option is on.

Create Checksums on Floppy: Creates a CHKLIST.CPS file for each directory on a floppy disk as it is scanned. This option is useful for creating checksums of files on floppy disks before write-protecting the disk. Once the checksums are created, write-protect the disk and turn off this option. Subsequent scans of the disk will compare files against their checksums, but will not attempt to update the checksums. If this option is on when scanning a write-protected floppy disk, the program displays a message indicating that Central Point Anti-Virus cannot write to the disk. The default for this option is off.

Disable Alarm Sound: Prevents an alarm from sounding when a warning message appears. The default for this option is off.

Create Backup: Makes a backup of any infected file before it is cleaned and renames it with the extension .VIR. The default for this option is off.

Create Report: Creates a report file after any action is taken in Central Point Anti-Virus. The file, named CPAV.RPT, is an ASCII text file located in the root directory of the selected work drive. The default for this option is off. The CPAV.RPT file contains the following information:

```
Central Point Anti-Virus
Virus search report for date:  mm/dd/yy, Time hh:mm:ss.
Virus xxxxx was found in file:
    C:\directory\filename
Total boot sector viruses  FOUND   :      #
Total boot sector viruses  REMOVED :      #
Total Files                CHECKED :      #
Total File viruses         FOUND   :      #
Total File viruses         REMOVED :      #
END OF REPORT.
```

NOTE If you scan a write-protected floppy disk with this option turned on, the report cannot be created on the disk. You see an error message telling you the disk is write-protected. If you want the report to be saved, remove the write protection.

Create Infection Report: Creates a \REPORTS subdirectory under the directory from which the CPAV program was executed. Detailed information about any virus found and action taken during a scan is stored in a file named *REPORT.###*, where ### represents 000 for the first report file, 001 for the second, and so forth. If the CPAV program is run from a network drive, the Activity Report shows *NET:* and the user name of the person who ran the program in place of the drive ID and volume name. The default for this option is on.

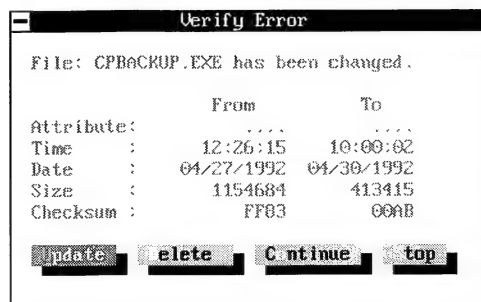
Prompt While Detect: Displays the Virus Found dialog box whenever an infected file is found during a detect operation. The default for this option is on.

See the *Troubleshooting Central Point Anti-Virus* chapter for more information about Virus Found dialog box options.

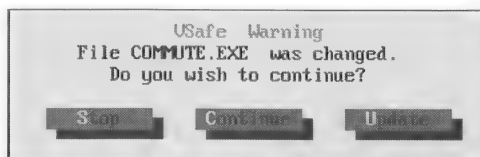
Detection Only: Disables the following functions: Clean, Immunize, Remove Immunization, and Delete Checklist Files from the Scan menu. The default for this option is off.

Allow Network Access: Allows scanning of network drives. The default for this option is on.

Disable Update Button: If Central Point Anti-Virus finds a modified executable file during a scan, it displays a Verify Error dialog box similar to the following dialog box (if you have the Verify Integrity and Prompt While Detect options on). From this box you can update the file's checksum, delete the file, continue the scan and ignore the change, or stop the scan. If the Disable Update Option is on, however, the update option is dimmed and you can only delete the file, stop the scan, or continue with no change.



This option also affects the operation of VSafe; if VSafe is installed memory-resident after this option is selected in CPAV.EXE, when you execute a changed file, the Update button in the VSafe warning dialog (following) is changed to Boot. The default for this option is off.



Disable Continue Button: If Central Point Anti-Virus finds an infected file, it displays the Virus Found dialog box, allowing you to delete, clean, stop the scan, or ignore the virus and continue. If Disable Continue Option is on, however, this option is dimmed and you can only delete or clean the file or stop the scan. This option also turns off the Continue button in all VSafe alert dialog boxes. The default for this option is off.

Disable VSafe Hotkey: Prevents access to the VSafe control menu with its hotkey. Use this option to prevent users from bypassing the use of VSafe. The default is off.

Disable Scan Stop: Turns off the usual means of stopping a Detect or Clean scan—pressing **F3**. The default for this option is off.

Checklist Files and Checksums

The Create New Checksums option creates a checklist file called CHKLIST.CPS in each directory as it is scanned. If you have the Verify Integrity option selected, the program also verifies the integrity of files based on information stored in the checklist files.

The CHKLIST.CPS file contains a database of statistics about each executable file's size, attributes, date, time, and checksum. On subsequent scans, these statistics verify that the files have not changed. (If the files have changed, it could indicate a virus infection, since executable files normally do not change.) This database is one of the most important safeguards you have against infection by unknown viruses. This way, you are warned of any change to a file, and you decide if it's a legitimate change. (A legitimate change is one you know you've made, such as copying newer files from the network or getting an upgrade to a software package.)

For more information about file verification, see "What is a Verify Error?" in the *Troubleshooting Central Point Anti-Virus* chapter.

Using the CHKLIST.CPS file and its checksums is an excellent way to guard against infection by new, unknown viruses. However, if disk space is at a premium on your computer, you can turn off the Verify Integrity and Create New Checksum options and delete any CHKLIST.CPS files that were created.

Deleting Checklist Files

If the Detection Only option is selected in the Option Settings dialog box, the Delete Checklist Files option of the Scan menu is not available. Follow the instructions in this chapter to change the Detection Only option.

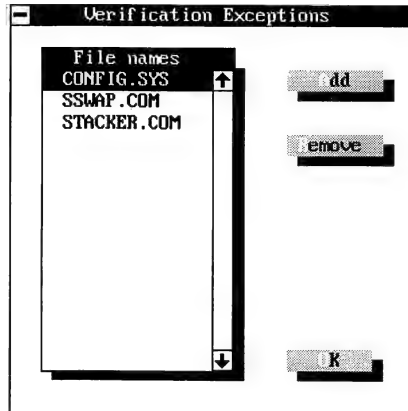
1. Select the directory from which you want to delete the CHKLIST.CPS file.
 - ▶ To delete *all* CHKLIST.CPS files on the drive, make all directories in the Directory Tree window active.
or
 - ▶ To delete the CHKLIST.CPS file from a single directory, deselect all other directories and select only that directory in the Directory Tree window.
2. Choose **Delete Checklist Files** from the Scan menu.
3. Choose **Delete** to delete the CHKLIST.CPS files.

Setting Verification Exceptions

To avoid verification alerts for files that change often, Central Point Anti-Virus allows you to create a verification exceptions list. For example, if you change your CONFIG.SYS file frequently, you can add it to the Verifications Exceptions list so that it is ignored when checksums are verified. Files in the Verifications Exceptions list are still checked for known viruses. VSafe also uses the Verifications Exceptions list. If you set a password, you are asked to supply it before making any modifications to this list. The list can contain 3,000 entries.

Adding a File to the Verifications Exceptions List

1. Choose **Verification Exceptions** from the Configure menu.



2. Choose **Add**.
3. Type the name of the file you want to add to the Verifications Exceptions list.
4. Choose **OK**.
5. Choose **OK** to return to the main window.

If you are using VSafe, reboot your system to reload VSafe and have it use the new Verification List.

Removing a File from the Verifications Exceptions List

1. Choose **Verification Exceptions** from the Configure menu.
The Verifications Exceptions dialog box appears.
2. Select the file you want to remove from the list.
3. Choose **Remove**.
4. Choose **OK** to return to the main window.

Setting Immunization Exceptions

Some files cannot be immunized. These include:

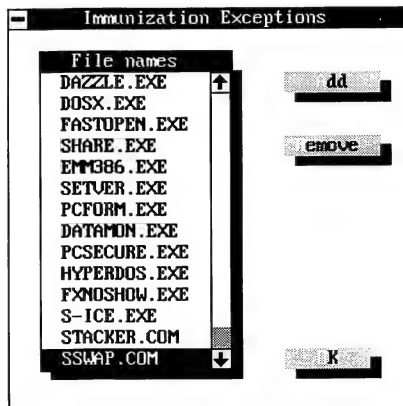
- .EXE files containing overlays or other information at the end of the file (usually debugging information)
- .EXE files with a corrupted header
- .EXE and .COM files smaller than 14 bytes (excluding the .EXE header)
- .COM files larger than 63K
- Files containing an independent self-checking system
- Windows™ or OS/2™ files

When you attempt to immunize any of these file types, Central Point Anti-Virus displays a dialog box informing you that the file cannot be immunized. From this dialog box, you can choose **Add** to add the file to the Immunization Exceptions list. Once added to this list, Central Point Anti-Virus does not attempt to immunize the file when you choose **Immunize** from the Scan menu.

Rarely, a program may not function correctly after it has been immunized. If this should occur, remove the file immunization and add the file to the Immunization Exceptions list.

Adding a File to the Immunization Exceptions List

1. Choose **Immunization Exceptions** from the Configure menu.



2. Choose **Add**.

3. Type the name of the file you want to add to the Immunization Exceptions list.
4. Choose **OK**.

The file you specified is now included in the Immunization Exceptions list and Central Point Anti-Virus will not attempt to immunize it the next time you choose **Immunize** from the Scan menu.

Removing a File from the Immunization Exceptions List

1. Choose **Immunization Exceptions** from the Configure menu.
2. Select the file you want to remove from the list.
3. Choose **Remove**.

The file you selected is removed from the Immunization Exceptions list and Central Point Anti-Virus will attempt to immunize it the next time you choose **Immunize** from the Scan menu.

4. Choose **OK** to return to the main window.

Scheduling Automatic Detection and Cleaning

You can schedule Central Point Anti-Virus to run unattended virus scans at regular intervals. As a preventive maintenance tool, Central Point Anti-Virus can detect and prevent virus infection before it occurs.

Central Point Anti-Virus will check local hard drives or network drives. If scanning a network drive, you must be attached and logged on to the server.

The scheduler provides a 15-second warning before the scan begins in case you want to exit the current program. After the scan is complete, you can quit the program and return to the application you were running.

Central Point Anti-Virus uses a memory-resident program, CPSCHED, to launch anti-virus scans at the time you specify. You can schedule scans without having CPSCHED in memory. However, CPSCHED must be resident in order to launch the scan at the scheduled time. If you chose not to have CPSCHED load automatically in your AUTOEXEC.BAT file when you installed, you must load CPSCHED prior to any scheduled scan.

- ▶ To do so, from DOS type,

CPSCHED
- ▶ To remove CPSCHED from memory, from DOS type,

KILL

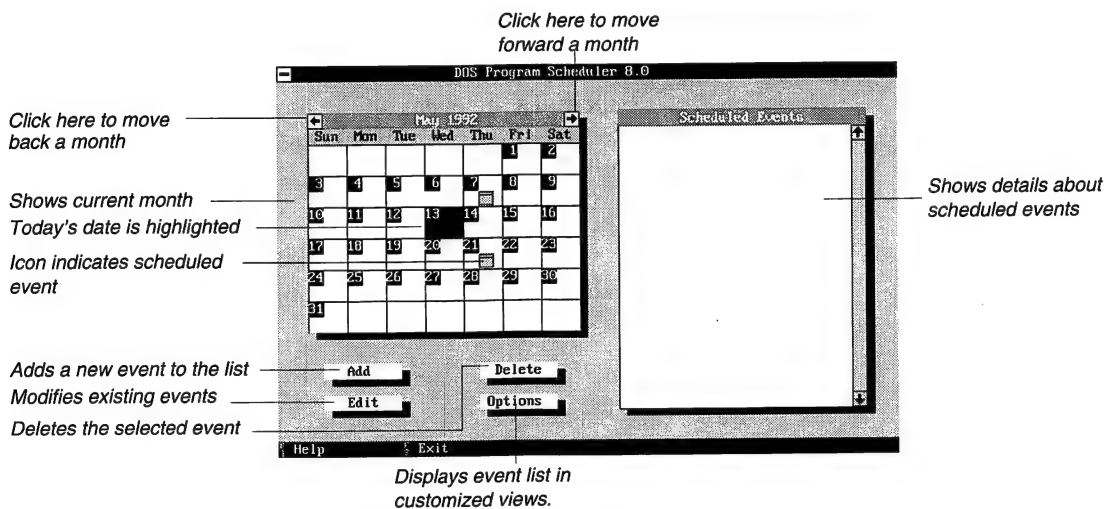
or

CPSCHED /U

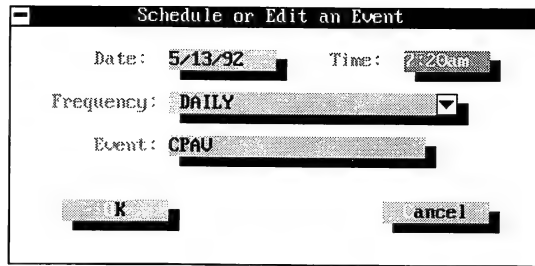
You can also remove CPSCHED from memory by using the **Select Startup Programs** command in PC Config.

Scheduling a Scan

1. Choose the **Schedule Anti-Virus Scanning** from the Configure menu.



2. Select the day on the calendar you want to schedule a scan to run.
3. Choose **Add**.



4. If you want to change the date, then type the date using the format mm/dd/yy in the Date text box.
5. Type the time you want to schedule your program, using the format hh:mm (a or p, Scheduler appends an "m" for you) in the Time text box. Do not put a space between the time and the am or pm.
6. Select a frequency.
Daily: Schedules the event to occur every day.
One Time Only: Schedules the event to occur one time.
Workdays Only: Schedules the event on the days you identify as workdays. You select the days of the week you want treated as workdays with the Options button on the main scheduler window. See the following section, "Scheduler Options" for details.
Monthly-Fixed Day: Schedules the event on the same date every month.
Monthly-Fixed Weekday: Schedules the event on the the same weekday every month.
7. Add any options (up to 64 characters) in the Event text box.
For example, type `CPAV.EXE /C /L` to have Central Point Anti-Virus start and automatically clean all local drives except A and B.
8. Choose **OK** to save this information.
9. Continue in this manner until you have scheduled all the events you want.
10. Choose **Exit** when finished.
11. Make sure the **Save Changes in Schedule** option in the Close dialog box is checked to save your scheduling information.

When you want the program to run, be sure the computer is on and CPSCHED is loaded. The scheduled event occurs at the specified time and returns the machine to the state it was in prior to the event.

If you have an execution password set for Central Point Anti-Virus, make sure you remove the password before the scan is scheduled to occur or else it won't perform the scan as scheduled.

Editing Existing Scheduled Scans

If you have a scheduled scan that you want to change, for example, from daily at 5:00 pm to daily at 7:00 pm, edit your events.

1. Choose the **Schedule Anti-Virus Scanning** from the Configure menu.
The Scheduler window appears with events scheduled.
2. Select the event you want to change in the Scheduled Events list.
3. Choose **Edit**.
4. Make your changes in the Schedule or Edit an Event dialog box.
For details, see steps 4-7 in the previous section, "Scheduling an Scan."
5. Choose **OK** to save this information.
6. Choose **Exit**.
7. Make sure the **Save Changes in Schedule** option in the Close dialog box is checked to save your scheduling information.

Deleting Scheduled Scans

If you decide you don't want a scheduled scan to occur anymore, you can delete it.

1. Choose the **Schedule Anti-Virus Scanning** from the Configure menu.
The Scheduler window appears with events scheduled.
2. Select the event you want to delete in the Scheduled Events list.
3. Choose **Delete**.
The event is removed from the list.

Keystrokes for Navigating the Calendar

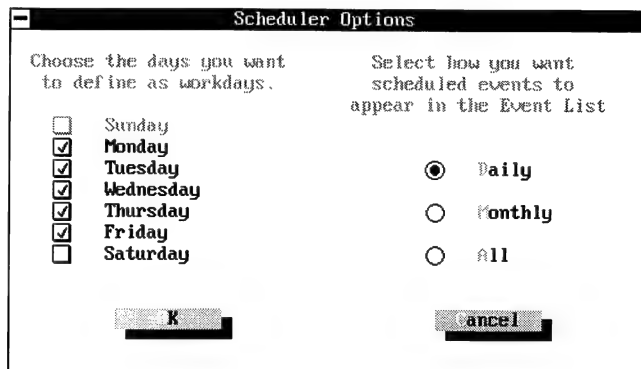
Use the following keys to navigate the Calendar window.

Use This Key	To Move to
← and →	Yesterday and tomorrow.
↑ and ↓	Last week and next week.
Tab	Event List from Calendar and back.
Pg Up and Pg Dn	Last month and next month.
Control ← and Control →	Last year and next year.

Selecting Scheduler Options

The **Options** button lets you define what days you want the Scheduler to recognize as work days, and change how scheduled events appear in the list: daily, monthly, or all.

1. Choose **Options**.



2. Select the days you want defined as workdays (to appear as options under Frequency).
3. Select how you want scheduled events to appear in the Event List.
 - Daily:** Displays only those events scheduled on the selected date.
 - Monthly:** Displays those events scheduled on any day in the current month.
 - All:** Displays all scheduled events.

Using the Activity Log

Whenever the Central Point Anti-Virus program scans, cleans, immunizes, or removes immunization, it adds a summary of the action to the activity log, a file called ACTIVITY.CPS, located in your \PCTOOLS directory. You can view this log on the screen or print it for future reference.

The activity log holds a maximum of 200 entries. When the log reaches this limit, the oldest entry will be deleted each time a new activity is recorded.

Viewing the Activity Log

- Choose **Activity Log** ► **Show** from the Scan menu or press **F7**.

The log entry for any scan where a virus was detected appears in a contrasting color. See the following section, "Infection Reports," for details on viewing the infection report.

NOTE When CPAV is run from a network drive, the Activity Report shows NET: and the user name of the person who ran the program.

Time the action occurred	Drive where action occurred	Action taken	Number of files scanned	Number of viruses detected				
Activity Log								
Date the action was taken	Date	Time	Drive	Action	Files	Virus	Clean	Number of viruses removed
	11/07/91	12:24:24	E: No Label	Detect	34	30	0	↑
	11/07/91	12:24:52	E: No Label	Detect	5	2	0	
	11/07/91	12:26:00	E: No Label	Detect	9	3	0	
	11/07/91	12:26:26	E: No Label	Detect	13	7	0	
	11/07/91	12:26:37	E: No Label	Detect	5	3	0	
	11/07/91	12:27:09	E: No Label	Detect	14	12	0	
	11/07/91	12:27:42	E: No Label	Detect	14	12	0	
	11/07/91	12:28:00	E: No Label	Detect	11	8	0	
	11/07/91	12:28:07	E: No Label	Detect	0	0	0	
	11/07/91	12:29:38	E: No Label	Detect	30	23	0	
	11/07/91	12:30:23	E: No Label	Detect	12	8	0	
	11/10/91	10:36:51	D: MS-RANDRIVE	Clean	180	0	0	↓

Shows Infection Report

info

print

K

Prints Activity Log

Printing a Copy of the Activity Log

- Choose **Activity Log** ► **Print** from the Scan menu.

or

Choose **Print** from the Activity Log dialog box.

Clearing the Activity Log

1. Choose **Activity Log ► Clear** from the Scan menu.
A confirmation dialog box appears.
2. Choose **OK** to delete the log file.
The log file, *ACTIVITY.CPS*, is deleted from your hard drive.

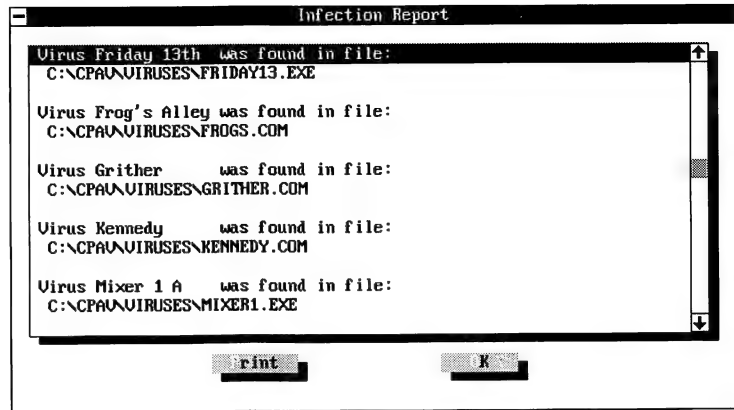
Infection Reports

When the Create Infection Report option is selected, Central Point Anti-Virus creates an infection report if it detects any viruses during a scan. These infection reports are written to a *\REPORTS* subdirectory located off the main directory where the main program is stored. Detailed information about any virus found and action taken during a scan is stored in a file named *REPORT.###*, where *###* represents 000 for the first report file, 001 for the second, and so forth.

When you view the Activity Log in Central Point Anti-Virus, the log entry for any scan in which a virus was detected contains the number of viruses detected or cleaned in a contrasting color. This indicates that an infection report exists. If the CPAV program is run from a network drive, the Activity Report shows *NET:* and the user name of the person who ran the program in place of the drive ID and volume name. Network supervisors will find this feature useful for getting as much information as possible about the source of the infection.

Viewing and Printing the Infection Report

1. Choose **Activity Log ► Show** from the Scan menu or press **(F7)**.
If there is a number greater than zero in the Viruses column and the log entry appears in a contrasting color, an infection report is available.
2. Move the highlight bar over an entry in the Activity Log dialog box.
3. Choose **Info** or press **(Enter)**.



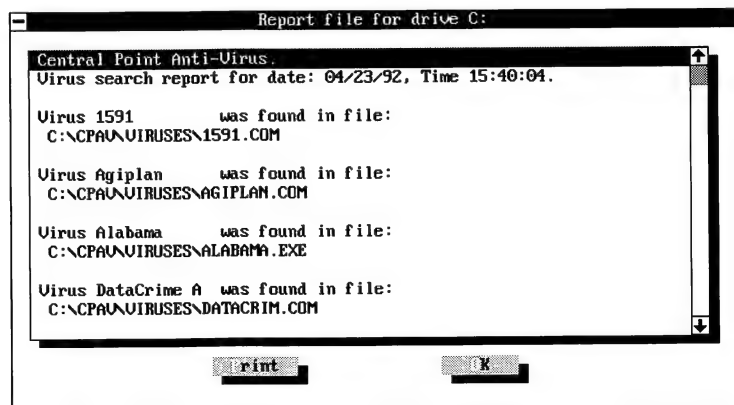
4. Choose **Print** from the Infection Report dialog box and then choose **Print** from the Print File dialog box.
5. Choose **OK** to return to Activity Log dialog box.

Report Files

Central Point Anti-Virus creates a report file when the Create Report option is selected and you take any action in Central Point Anti-Virus. This file, CPAV.RPT, is an ASCII text file located in the root directory of the selected work drive. This file may be useful if you are scanning floppy disks. You can save report files on each floppy disk, then write-protect them before storing.

Viewing the Report File

- Choose **Report ► Show** from the Scan menu.



Printing a Copy of the Report File

- ▶ Choose **Report** ▶ **Print** from the Scan menu.
or
Choose **Print** from the Report File dialog box.

Clearing the Report File

- ▶ Choose **Report** ▶ **Clear** from the Scan menu.
A confirmation dialog box appears.
or
Choose **OK** to delete the report file.
The report file, CPAV.RPT, is deleted from the specified drive.

Using the Virus List

Central Point Anti-Virus includes a list of all the viruses it can recognize. Each virus is listed by its most common name, with known aliases indented under the name. The Virus List also shows the type of virus along with the size of the virus code and the number of known strains, or variants, of the virus.

Viewing and Printing the Virus List

1. Choose **Virus List** ▶ **Show** from the Scan menu or press **F9**.
The Virus List window appears. When you are finished looking at the Virus List, choose **OK**, press **Esc**, or click the close box to dismiss the window.

Virus List			
Name	Type	Size	#
Adolph	File	1720	1
AIDS	Trojan	13312	4
AIDS II	Trojan	8064	1
AIDS Information	Trojan	120000	1
AirCop	Boot	512	2
Agiplan	File	1536	2
Alabama	File	1560	2
Amoeba	File	1392	1
Amoeba 2	File	1392	1
Amstrad	File	847	5

Find ext

Info Print K

For more information about viruses, click the Info button to see online information about each virus. See “Viewing and Printing Specific Virus Information” for details.

2. Choose **Print** from the Print Virus List dialog box.

Viewing Specific Virus Information

You can get detailed information about the viruses listed in the Virus List dialog box. Information such as the size of a virus, the files it can attack, whether it resides in memory, and the side effects you may see is available.

1. Choose **Virus List** ► **Show** from the Scan menu or press **(F9)**.

The Virus List dialog box appears.

2. Select the virus you want information about.

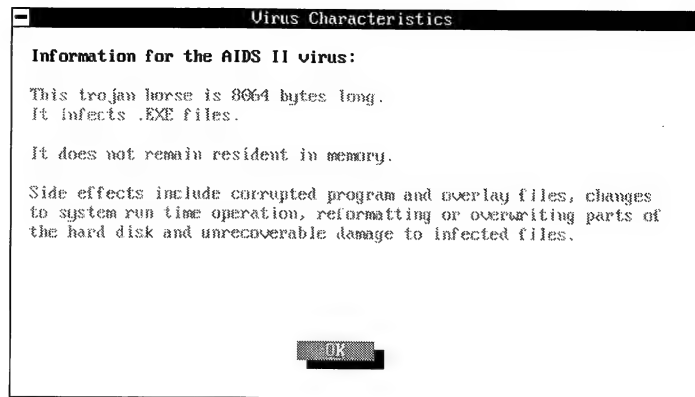
- Scroll to the virus you want more information about and choose **Info** or click it with the mouse.

or

- Press **(Tab)** to activate the list, use **(↑)** or **(↓)** to move the highlight bar to the virus you want more information about, and then press **(Enter)** or choose **Info**.

or

- Type a few characters of the virus you want information about in the text box. As you type the first few letters of the virus name, the first virus or alias containing those letters is highlighted in the list. Press **(Enter)** or choose **Info**.



3. Choose **OK** or press **[Esc]** to dismiss the dialog box.
The Virus List dialog box appears.
4. Choose **Find Next** to find the next occurrence of the specified virus.

Updating the Virus List

New viruses are discovered on a regular basis. You can update the virus-detection capabilities of Central Point Anti-Virus by getting the necessary files from the Central Point Software Bulletin Board or from CompuServe.

About Signatures

Anti-virus programs use signatures to identify known viruses. *Signatures* are series of codes that are unique to individual viruses. Signature updates improve the detection-only capabilities of Central Point Anti-Virus. If you install a new signature file and try to use it with another manufacturer's anti-virus program, you may receive a false alarm that a virus is present. In reality, the program is seeing the signature for a virus, not the actual virus. Use only the signatures for Central Point Anti-Virus with this program to avoid receiving false alarms.

NOTE These signature updates also improve the virus-detection capability of the other Central Point Software programs that have virus-detection features (CP Backup, DiskFix, and Commute).

Please note that signatures added to Central Point Anti-Virus update the virus-detection capabilities of CPAV.EXE and VSafe. VWatch and BootSafe does not use the external signature file. To receive virus-cleaning and immunizing capabilities and to update VWatch, you must upgrade the program or subscribe to the Continuous Anti-Virus Protection (CAP) Service. You can update virus signatures monthly by downloading files from Central Point Software's BBS or CompuServe. If you enrolled in the subscription service, disks are mailed to you quarterly.

Getting New Virus Signatures

- ▶ Using your choice of communication software, along with your computer and a modem, connect to either the Central Point Software Bulletin Board or to CompuServe.

On CompuServe, locate the Central Point Software Forum and download the specified files to your computer. Follow the instructions below to update the Virus List automatically. See the *Central Point Software Registration and Support Card* for information about connecting to the bulletin board or CompuServe.

NOTE Enter signatures from this source only. Virus signatures from sources other than Central Point Software may not be accepted by the program or may be incorrect.

Updating the Virus List Automatically

1. Obtain the updated program files.
 - ▶ Subscribe to the Continuous Anti-Virus Protection Service, which provides complete program updates.
 - or*
 - ▶ Using your choice of communication software, along with your computer and a modem, connect to the CPS Bulletin Board or to CompuServe.

If you connect to CompuServe, locate the Central Point Software Forum area. Locate the Virus Update area of the bulletin board and download the signature files.
2. Follow the instructions for extracting the archived files and copying them to your hard disk.
3. Run the Central Point Anti-Virus program.
The Virus List is updated automatically.

Changing the Alert Message

You can add a message up to 40-characters long to the alert messages that appear when a virus is found on the computer. You may want to add the phone number for your network administrator or your information systems department so that you know who to contact for assistance when there is a virus or changes to a file. The custom message you create with Change Alert Message appears in warning messages generated by both Central Point Anti-Virus and VSafe.

If a password has been set in Central Point Anti-Virus, you will be prompted to enter it when you try to change the message.

1. Choose **Change Alert Message** from the Configure menu.
2. Enter the message you want to appear when a virus is found.
The message can be a maximum of 40 characters.
3. Choose **OK** to change the message.

Password Protection

When you create a password in Central Point Anti-Virus, it is required when changing from the Express Menu to Full Menus, or from changing these in the program:

- Access to the Options dialog box
- Alert Message
- Verification Exceptions
- Immunization Exceptions
- Send Network Messages

Adding or Changing the Password

This procedure allows you to change the password assigned during installation or, if none was assigned at that time, to create a new password.

1. Choose **Change Password** from the Configure menu.
2. Enter the current password, if any, and choose **OK**.
3. Type a new password and choose **OK**.
4. Type the new password again to verify it and choose **OK** to accept the new password.

Removing a Password

1. Choose **Change Password** from the Configure menu.
2. Enter the current password and choose **OK**.
3. Press **[Enter]** when prompted for a new password and choose **OK**.
4. Type **[Enter]** again to verify it and choose **OK**.

Virus Notification on Networks

If Central Point Anti-Virus detects a virus and the user is logged on to a Novell network server, a message indicating the user's name and the drive containing the virus appears on the server's system console.

Novell Network users can configure Central Point Anti-Virus so that it notifies the network administrator or any other network user when it finds a virus on the user's computer.

If a password has been set in Central Point Anti-Virus, you will be prompted to enter it when you try to use this option.

To specify the user to be notified when a virus is detected:

1. Choose **Send Network Messages To** from the Configure menu.
2. Type a valid network user name in the Network Messages dialog box.
By default, no user name is specified.
3. Choose **OK**.

If the CPAV program finds a virus on your machine, a message appears on the screen of the user you specified and the system console.

Switching to the Express Menu

You can easily switch from Full to the Express Menu. When you exit the Central Point Anti-Virus program, it remembers which mode you were using last. The next time you run the program, the mode you used last will be the default mode.

- Choose **Change to Express Menu** from the **Configure** menu or press **[F8]**.

NOTE If a password was assigned during installation or from the Configure menu, you will be required to enter it before returning to Full Menus.

Saving Configuration Changes

- ▶ Choose **Save Settings on Exit** from the Configure menu.
or
 1. Exit the program.
A confirmation dialog box appears.
 2. To save any configuration changes you made, select **Save Configuration**.
 3. Choose **Exit**.

Ongoing Virus Protection

Here's what you'll find in this chapter:

- **What the Utilities Do** explains how BootSafe, VSafe, and VWatch protect your system against computer viruses.
- **Using BootSafe** describes BootSafe and how to use it to protect your partition table, boot sector, and CMOS information.
- **Choosing VSafe or VWatch** explains the differences between VSafe and VWatch to help you choose which TSR you want to use.
- **Installing VSafe or VWatch from the Command Line** describes how to run VSafe, BootSafe, or VWatch from the command line.
- **Configuring VSafe** describes how you can change protection settings temporarily in DOS or Windows.
- **Unloading the Utilities from Memory** explains how to remove the utilities from memory.

What the Utilities Do

Three DOS utilities provide you with continuous, behind-the-scenes protection against known and unknown viruses. BootSafe, VSafe, and VWatch are your first line of defense against virus infection.

BootSafe, run from your AUTOEXEC.BAT file, looks for any existing boot sector viruses by comparing the current boot sector and partition table against their images created during the installation process and looks for any changes in the boot sector and partition tables.

VWatch checks for known viruses whenever a program is executed or a disk accessed. If it finds a virus, it displays a message and the program or disk operation halts, allowing you the opportunity to run the Central Point Anti-Virus program to clean the virus.

VSafe provides the best ongoing virus protection by employing two methods of file verification. VSafe checks for known viruses when a file is opened, copied, executed, or a disk is accessed and compares the file against the list of known viruses in the program's Virus List. It also alerts you of any change in a file, which can indicate the presence of an unknown virus. VSafe verifies a file's integrity by comparing its size, attribute, date, time, and checksum information to the information that is stored in the CHKLIST. CPS file for each directory.

Using BootSafe

Many viruses infect the boot sector and partition table of disks. BootSafe is a utility that protects these vital disk areas.

When you run BootSafe from your AUTOEXEC.BAT file, it looks for any existing boot sector viruses by comparing the current boot sector and partition table against their images created during the installation process. Any changes are reported. Thus, any boot sector virus that attempts to infect your system is trapped, even if it is an unknown boot virus.

If the CMOS information, partition table, or boot sector of your hard disk is damaged for any reason, you can use the image saved with BootSafe to restore the disk to working condition. You can instruct BootSafe to save a copy of this information to a floppy disk. This is added insurance for your system. If a virus causes damage to the partition table, you can use the emergency disk to restore the saved image, allowing you to continue operating your system. Although this file is not automatically copied when you create your emergency disk, you can save the image to the emergency disk.

NOTE *BootSafe is not effective on network drives because they do not use true boot sectors or partition tables. Use the Central Point Anti-Virus program to scan network drives.*

What Is the Partition Table? Partitioning is the way that DOS organizes a single physical hard drive into one or more logical drives. For example, while there may be only one hard drive in your computer, it can be partitioned so that it appears to you as drives C, D, and E. The partition table keeps track of this information and is stored in the first sector of the physical hard disk. If the partition table is damaged, DOS gives you the error "Invalid drive specification" when you try to access the drive. (In rare cases, you might see the message "General disk failure" instead.)

What Is the Boot Sector? The boot sector of a disk is located on the first sector of a disk. This sector contains a short operating-system program which, along with the system files, enables the computer to load DOS from the disk. The boot sector also contains information that the computer needs to read from or write to the disk. The boot sector is particularly vulnerable to virus infection.

What is the CMOS Information? CMOS stands for complementary metal-oxide semiconductor. Many 286-class or later computers use a battery-powered CMOS device to store information about the system, including the date, time, and number and types of drives the computer has.

Saving an Image of the Partition Table

The first time you run BootSafe, the program asks if you want to save the image of the partition table to a floppy disk.

1. Insert your emergency disk in drive A.
2. Choose **Yes**.

This saves the the image to your emergency disk.

In addition, any time you modify your partition table—upgrade to MS-DOS 5, DR DOS 6, or add a disk-compression utility that reassigns drive C (such as Stacker by Stac Electronics)—you need to perform the following task.

1. From DOS, type

```
BOOTSAFE C: /M 
```

This saves an image of the partition table of the physical C disk. To save an image of a different disk, substitute its drive identifier for C. For example, to save an image of the partition table for the D disk, type

```
BOOTSAFE D: /M 
```

2. Choose **Yes** to save an image of the partition table to a floppy disk in drive A.
3. Insert a formatted disk into drive A and press any key.

A file called CBOOT.CPS is created on the root directory of the disk in drive A. If you substituted a different drive identifier in step 1, it replaces the C in the file name. For example, if you entered the command BootSafe D: /M, the resulting image file is called DBOOT.CPS.

4. Repeat steps 1 through 3 to save partition table images of additional disks, if needed.

Because each partition table image is given a unique name, based on its drive identifier, you can use the same floppy disk to create partition table images for multiple disks attached to your computer.

5. Label the disk with the drive identifier, volume name, and today's date. Write-protect the disk and store it in a safe place.

For example, you might label the disk *Image of partition table - drive C:LUCKY, 4/11/92*. If more than one partition table image is stored on the disk, mark the label with the drive identifier, volume name, and date for each image.

Clear labels and safe storage help to ensure that you have a good copy of the partition table image on hand in the event of a virus-induced crash.

Checking the Boot Sector and Partition Table for Viruses

- From DOS, type

```
BOOTSAFE 
```

This saves the boot sector and partition table information of the current drive.

NOTE If you use a disk-compression utility such as *Stacker* or *SuperStor*, you will probably receive a message that the partition table has changed. If you receive this error message, you need to change the *BootSafe* line in your *AUTOEXEC.BAT* file. See the *Troubleshooting Central Point Anti-Virus* chapter for how to proceed.

To check a different drive, type the drive identifier after the command. For example, to check the boot sector and partition table of drive D, type

```
BOOTSAFE D: 
```

To check multiple drives in one step, type each drive identifier, separated by a space, after the command. For example, to check drives C, D, and E, type

```
BOOTSAFE C: D: E: 
```

Restoring a Saved Partition Table Image

If your computer's boot sector or partition table has been damaged by a virus, you need to restore the saved image of the partition table.

WARNING Restore a partition table image only if the hard drive where the image originated has been damaged. Also, do not restore the partition table's image to any computer other than the one from which the image was created. Doing either of these can prevent the disk from booting.

1. Insert the floppy disk containing the image of the partition table.
2. From DOS, type

```
A:BOOTSAFE C: /R 
```

This restores the image of the partition table stored on drive A to drive C. To restore an image of a different disk, substitute its drive identifier for C. For example, to restore an image of the partition table for the D disk, type

```
A:BOOTSAFE D: /R 
```

3. Choose **Yes** to restore the image of the partition table from the floppy disk in drive A to drive C.

or

To return to DOS without restoring the partition table image, choose **No**.

Choosing VSafe or VWatch

VSafe and VWatch are memory-resident, virus-protection utilities. Install the one that best suits your system configuration and virus-protection needs.

TIP Use VSafe to provide the highest level of ongoing virus protection for your computer.

During configuration, you have the choice of two memory-resident programs to protect against virus infection: VSafe or VWatch.

- Use VSafe for maximum, ongoing protection against virus infection.
- Use VWatch for protection in situations where system memory is at a premium.

Choose one or the other based on your system configuration and virus-protection needs.

Program	Conventional Memory	Configurable Options	Monitors
VSafe	7K minimum, if using expanded memory	8	Known and unknown viruses
VWatch	2K minimum, if using expanded memory	None	Known viruses only

If you install VWatch or VSafe and then run another manufacturer's anti-virus program, you may receive an alert that a virus is present. In reality, the program sees the signature for a virus, not the actual virus. Turn off any other anti-virus program and use the Central Point Anti-Virus program to avoid receiving these false alarms.

Memory Usage for VSafe and VWatch

VSafe and VWatch both support expanded and extended memory. VWatch also supports the swapping of a portion of the program to a disk file if one exists. (See the *Central Point Anti-Virus Command-Line Options* chapter for more information.) The programs look first for available expanded memory, and then extended memory when loading. The amount of conventional memory occupied depends upon the use of available expanded or extended memory as shown in the following tables:

When VSafe Uses	Conventional Memory Usage is
Expanded Memory	7K
Extended Memory	23K
Conventional Memory	44K

When VWatch Uses	Conventional Memory Usage is
Expanded Memory	2K
Extended Memory	7K
Conventional Memory	28K
Disk Swapping	9K

You can force the type of memory used by adding command-line options. See the *Central Point Anti-Virus Command-Line Options* chapter for specific command line details and for other methods of optimizing memory usage.

Using VSafe

Use VSafe for maximum, ongoing protection against virus infection. This utility monitors the system at all times for suspicious activity. If activity occurs that may have been triggered by a known or unknown virus, VSafe displays a warning message, giving you the opportunity to continue the operation, restart the system, update the file, or cancel the operation.

You can keep VSafe's virus-detection capabilities up-to-date by obtaining the newest signature file from Central Point Software. See "Keeping Central Point Anti-Virus Up-to-Date" in the About Central Point Anti-Virus chapter for more information.

Eight options in VSafe allow you to configure the level of system monitoring to be performed. The defaults for these options are set during configuration, but you can change them at any time. To change options temporarily from DOS, access the VSafe control window by pressing the hotkey. The default hotkey is **Alt**+**V**. Changes to VSafe's settings remain in effect until you reboot and your original settings are restored by the AUTOEXEC.BAT statement. To temporarily change VSafe options from Windows, use the VSafe control window of the TSR Manager.

To change these options permanently, edit your AUTOEXEC.BAT file and change the VSAFE command-line options. See the *Central Point Anti-Virus Command-Line Options* chapter for details.

WARNING If you are using a write-delay caching program (like PC Tools PC-Cache), do not use the General Write Protect option, which is off by default. A write-delay cache holds information in memory, waiting to write to a disk, and if the disk is write-protected, you'll get a write failure error. Also, because Windows uses the disk for memory swapping, turn off VSafe's Write Protect option when running Windows. If you turn on this option while in Windows, VSafe displays a message advising you to turn it off.

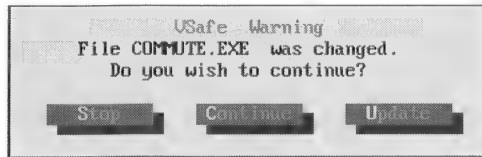
Option	Action When Selected (On)	Default
HD Low-Level Format	Warns of formatting, which could completely erase the hard disk.	On
Resident Programs	Warns of any attempt by a program to use standard DOS methods to stay in memory. Generates warnings for any legal program, such as Desktop Accessories in resident mode, and does not necessarily indicate a virus.	Off
General Write Protect	Prevents all writing to the disk. This is useful if you are running a program you suspect is infected. Pressing Continue allows you to go on.	Off
Check Executable Files	Checks any executable file opened by DOS for any reason (including copying) for known viruses. When this option is off, VSafe checks files only when they are executed, not when DOS opens them for other reasons (such as copying and printing).	On
Boot Sector Viruses	Checks any disk in the system for boot sector viruses.	On
Protect HD Boot Sector	Warns of any attempt to write to the boot sector and partition table of the hard disk.	On
Protect Floppy Boot Sector	Warns of a program attempting to write to the disk boot sector of a floppy disk.	Off
Protect Executable Files	Warns of any attempt to modify executable files.	Off

The following options set in the Central Point Anti-Virus program also affect VSafe:

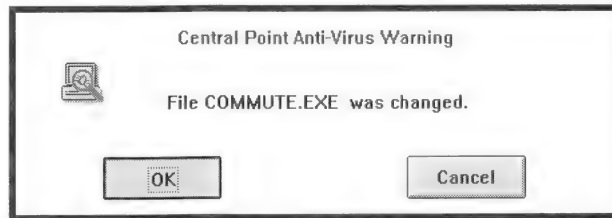
Verify Integrity: Defends against unknown viruses by alerting you when executable files and system files change, based on statistics stored in the CHKLIST.CPS files about each executable file's size, attributes, date, time, and checksum. During subsequent scans, the program compares files to the database and alerts you of any changes. This comparison helps to isolate changes that may have been made to files by new, unknown viruses.

If VSafe detects that a file no longer matches its checksum, the resulting dialog box lets you update the checksum directly without running the Central Point Anti-Virus program.

The following VSafe warning appears when you execute a modified file:



In Windows, the TSR Manager displays the following dialog box to indicate a file has changed. Choosing OK allows you to execute the file. If you choose Cancel, the file is not executed. You can then run Central Point Anti-Virus to scan the file for virus infection. You cannot update checklist files from the VSafe dialog box in Windows.



Disable Continue Option: Turns off the Continue button in all VSafe alert dialogs.

Disable Update Option: Disables the Update button in a VSafe alert dialog box so you can only ignore the change and continue or stop the execution of the file. If VSafe is installed memory-resident after this option is selected, the Update button is changed to Boot.

Disable VSafe Hotkey: Prevents access to the VSafe control menu with its hotkey.

Change Alert Message: Lets you specify the message that appears when a VSafe warning dialog box appears.

These five settings are stored in the CPAV.INI file. To have them take effect, you must unload VSafe and then reload it, or reboot the computer, so that the modified CPAV.INI file is read.

Using VWatch

Use VWatch for ongoing protection in situations where system memory is at a premium. Unlike VSafe, which detects known and unknown viruses, VWatch checks only for known viruses whenever you execute a program or access a disk. If VWatch finds a virus, it displays a message and halts the program or disk operation, allowing you the opportunity to run the Central Point Anti-Virus program to eliminate the virus.

NOTE *If you access a network, load VWatch after the network drivers, but before logging onto the network.*

Installing VSafe or VWatch from the Command Line

You can run VSafe or VWatch at any time from the command line or by manually modifying the AUTOEXEC.BAT file to install the utility. You may enter any command-line options you need. See the *Central Point Anti-Virus Command-Line Options* chapter for details.

- From DOS, type

VSAFE

When you obtain new signatures, VSafe shows the number of external signatures it reads when it loads into memory.

or

VWATCH

The VSafe or VWatch sign-on screen appears.

Configuring VSafe

When you install VSafe, the default protection options are placed in your AUTOEXEC.BAT file and remain in effect each time you start your computer. You can change these options temporarily. These temporary settings remain in effect until you reboot and your original settings are restored by your AUTOEXEC.BAT statement.

Changing Protection Settings in DOS

1. Press the VSafe hotkey.

The default is **Alt V**.

See the *Central Point Anti-Virus Command-Line Options* chapter later in this manual for more information on this option.

If the	Then
Control window does not appear	Type VSafe Enter at the DOS prompt, and press Alt V .
Control window still does not appear	Check the AUTOEXEC.BAT file to see if the line containing VSafe has been modified to include the /Az or /Cz option.
Modifier has been added	Press the z option in combination with Alt or Ctrl to display the control window.

2. Type the number of the option you want to turn on or off. (See "Using VSafe" earlier in this chapter for an explanation of the options.)

A check mark in the ON column indicates that the corresponding option is turned on. Type the number of an option to add or remove the check mark.

VSafe will always check for viruses and notify you of suspicious activity in these situations:

- Whenever an infected or changed executable file is run
- Whenever a program attempts to stay in memory by a method other than standard DOS memory-resident calls

NOTE Some network drivers install memory-resident without using standard DOS calls, which may generate a VSafe warning message.

3. Repeat step 2 to configure additional options, if necessary.
4. Press **Esc** to exit the VSafe control window.

Changing Protection Settings in Windows

The TSR Manager allows VSafe to communicate when Windows is running. If VSafe (or any Central Point TSR) is resident, the TSR Manager intercepts messages it generates and displays them when you run Windows. The TSR Manager also lets you configure VSafe options.

If you configure VSafe options during the installation process, Install configures the TSR Manager to load automatically whenever you run Windows. The TSR Manager works only if VSafe is resident when you run Windows and displays icon buttons for only those Central Point TSRs that are resident.

1. Open the TSR Manager.
 - ▶ Double-click the minimized icon on the desktop.
or
 - ▶ Double-click the TSR Manager icon in the Central Point Anti-Virus program group in the Program Manager.
2. Click the VSafe button or press **Enter**.
3. Select any of the VSafe options you need to change for this Windows session. (See "Using VSafe" earlier in this chapter for information about these options.)

Changes to VSafe's settings remain in effect until you reboot and your original settings are restored by the AUTOEXEC.BAT statement.

To make a change permanent, edit your AUTOEXEC.BAT or CONFIG.SYS file or configure VSafe from the installation program.

VSafe will always check for viruses and notify you of suspicious activity in these situations:

- Whenever an infected or changed executable file is run
- Whenever a program attempts to stay in memory by a method other than standard DOS memory-resident calls

NOTE *Some network drivers install memory-resident, without using standard DOS calls, which may generate a VSafe warning message.*

4. Choose **OK** to exit the VSafe control window, then choose **Minimize**.

Unloading Utilities from Memory

You cannot remove the VSafe TSR from memory while in Windows; however, you can disable its monitoring capabilities temporarily by turning off all options. If you exit the TSR Manager, VSafe still monitors your system for suspicious activity, but warning dialog boxes do not appear; instead, you hear a beep and the program halts execution of the suspected file.

Removing VSafe from Memory

1. Remove any TSRs that were installed after VSafe.

Remove TSRs from memory in the reverse order of their installation. Before removing VSafe, remove any other TSR that was loaded afterwards to prevent those TSRs from being removed also. Otherwise, the system may hang. If you attempt to remove VSafe and other TSRs were loaded after it, a warning message appears.

2. From DOS, press **[Alt][V]** to display the VSafe control window.

See the *Central Point Anti-Virus Command-Line Options* chapter later in this manual for more information on this option.

If the	Then
Control window does not appear	Type VSafe [Enter] at the DOS prompt, and press [Alt][V] again.
Control window still does not appear	Check the AUTOEXEC.BAT file to see if the line containing VSafe has been modified to include the /Az or /Cz option.
Modifier has been added	Press the z option in combination with [Alt] or [Ctrl] to display the control window.

3. Press **[Alt][U]** to remove VSafe from memory.

or

From DOS, type


VSAFE /U **[Enter]**

Removing VWatch from Memory

1. Remove any TSRs that were installed after VWatch.

Remove TSRs from memory in the reverse order of their installation. Before removing VWatch, remove any other TSR that was loaded afterwards to prevent those TSRs from being removed too. Otherwise, the system may hang.

2. From DOS, type

VWATCH /U 

Central Point Anti-Virus Command-Line Options


You can run or configure each of the components of Central Point Anti-Virus from the command line. You can add options to run a program from the DOS command line or set options from within a batch file.

Enter command-line options in upper or lowercase letters. The format for running Central Point Anti-Virus from the command line is:

CPAV [*d*:] [/x]

Substitute the drive you want to scan or clean for *d*. Substitute one of the options listed below for *x*.

The directory where Central Point Anti-Virus is installed must be in your path.

The options /S (Scan) and /C (Clean) cannot be used together. For example, the command CPAV /S /C  is not a valid command.

NOTE There are additional command-line options that you can use to control program display and mouse operation. See the Global PC Tools Command-Line Options chapter in Part 4 General Reference in Volume 1 or type CPAV /VIDEO.

Option /x	Description
/S	Scans specified disk and files for viruses.
/C	Scans and cleans specified disk and files for viruses.
/I	Scans, cleans, and immunizes specified disk and files. You cannot remove immunization from the command line. See the <i>Using Full Menus</i> chapter for information on removing immunization. This command does not work with the /P or the /N option.
/?	Displays help screen.
/A	Scans all drives except A and B (including network drives).
\[path] \[filename]	Accepts the name of a file to scan. Wildcards are not accepted.
/E	Enters the Express Menu directly.
/F	Suppresses names of files scanned. Valid only with /N or /P.
/L	Scans all local drives except A and B.
/R	Turns on the Create Report option.

Continued

Option /x	Description
/N	Suppresses interface information. Displays text in the CPAV.TXT file, if one exists.
/P	Displays command-line interface instead of the graphic interface.
/?	Displays command-line help for Central Point Anti-Virus options.
/VIDEO	Displays command-line help for Central Point Anti-Virus video and mouse options.

Substitute the drive you want to scan, clean, or immunize for *d*. Substitute one of the options listed above for *x*. No space is required between the drive designator and the option.

Specifying a drive identifier with no options opens the Central Point Anti-Virus program with the specified drive as the work drive.

Examples

CPAV D:

Opens Central Point Anti-Virus with drive D selected as the work drive.

CPAV C:/S

Scans drive C for viruses.

VSafe Command-Line Options

You can load VSafe into memory from the command line by using the following syntax:

VSAFE [/x y] [/x y]

/x Option	Description	Default
/1	HD low-level format warning.	On
/2	Resident warning.	Off
/3	General write protect.	Off
/4	Check executable files.	On
/5	Boot sector infection warning.	On
/6	Protect hard disk boot area.	On
/7	Protect floppy disk boot area.	Off
/8	Write protect executable files.	Off

/y Option	Description
+	Turns option x on.
-	Turns option x off.

Do not use a space between the x and y options. A space between option groups is optional.

You can add any of the following options to the VSafe command line for additional control.

Option	Description
/?	Displays help screen.
/AZ	Sets hotkey as Alt z , where z is any letter. The Alt V combination is the default hotkey.
/C z	Sets hotkey as Ctrl z where z is the new hotkey. z can be any letter.
/D	Disables the creation of checksums (CHKLIST.CPS files).
/U	Removes VSafe from memory.
/N	Allows recognition of network drivers loaded after VSafe.
/NE	Disables the use of expanded memory. If you don't want VSafe to use expanded memory, use this option.
/NX	Disables the use of extended memory. If you don't want VSafe to use extended memory, use this option.

Examples

VSAFE /1- /2- /3- /4+ /5+ /6+ /7+ /8-

VSAFE /1-/2-/3-/4+/5+/6+/7+/8-

Both of the above commands turn off the HD Low-Level Format warning option and turn on the Protect Floppy Disk Boot Area option.

VSAFE /1-/2-/3-/4+/5+/6+/7+/8-/At

Installs VSafe memory-resident with HD low level format warnings turned off, protection of the floppy disk boot areas turned on, and the hotkey to invoke the VSafe control window changed to . All other options retain their default values.

VSAFE /NE

Forces VSafe to use extended memory, when both expanded and extended memory are present in your system (excludes the use of expanded memory).

VSAFE /NE /NX

Forces the use of conventional memory when both expanded and extended memory are present.

VSAFE /Ab

Installs VSafe memory-resident with default option settings and a hotkey combination of .

When VSafe is memory resident, press (or the alternate key specified with the /Az option) at any time to display the control window from DOS. In Windows, open the VSafe control window of the TSR Manager.

When the control window is open, options can be turned on or off by pressing their corresponding number. Pressing with the control window open removes VSafe from memory.

NOTE Remove TSRs from memory in the reverse order of their installation. Before removing VSafe, remove any other TSR that was loaded afterwards to prevent those TSRs from being removed also. Otherwise, the system may hang. If you attempt to remove VSafe and other TSRs were loaded after it, a warning message appears.

VWatch Command-Line Options

You can load VWatch into memory from the command line by using the following syntax:

```
VWATCH [/x]
```

Option	Description
/U	Removes VWatch from memory. This option works only if VWatch was installed as a COM file from the command line or through the AUTOEXEC.BAT file.
/D	Allows the use of disk swapping to conserve conventional memory.
/NE	Disables the use of expanded memory. If you don't want VWatch to use expanded memory, use this option.
/NX	Disables the use of extended memory. If you don't want VWatch to use extended memory, use this option.

NOTE Remove TSRs from memory in the reverse order of their installation. Before removing VSafe, remove any other TSR that was loaded afterwards to prevent those TSRs from being removed also. Otherwise, the system may hang. If you attempt to remove VSafe and other TSRs were loaded after it, a warning message appears.

Examples

Use the following examples to demonstrate the command-line syntax for VWatch options.

```
VWATCH /NE 
```

Forces VWatch to use extended memory when both expanded and extended memory are present in your system (excludes the use of expanded memory).

```
VWATCH /NE /NX 
```

Forces the use of conventional memory when both expanded and extended memory are present.

```
VWATCH /D 
```

Loads a portion of the program into conventional memory, occupying 8K. When other parts of the program are needed, VWatch reads the information from disk. Because VWatch scans files only when they are executed, disk swapping only minimally affects system performance.

BootSafe Command-Line Options

Add any of the following options when running BootSafe from the command line.

```
BOOTSAFE [d:] [e:]... /x
```

Option /x	Description
/A	Exits the program without prompting, issuing an error code (either 86 or 2). This option works only with /T. Both of these options are useful in batch files and in network environments.
/M	Creates new image files of boot areas and stores them on disk in drive A.
/R	Restores the boot areas from drive A.
/Tx	Specifies the number of days between the last scan operation and when a reminder will be displayed. Substitute the number of days for x. Default is 7 days.
/?	Displays help screen.

Examples

Use the following examples to demonstrate the command-line syntax for BootSafe options.

```
BOOTSAFE C: D: 
```

Checks the boot sectors and partition tables of the C and D disks for viruses.

```
BOOTSAFE C: D: /M 
```

Creates new image files of boot sectors and partition tables from disks C and D and stores them on a floppy disk in drive A.

```
BOOTSAFE D: /R 
```

Restores the D disk's original boot sector and partition table, which were created with the /M option and stored on a floppy disk in drive A.

```
BOOTSAFE C: /T1 /A  
IF ERRORLEVEL 2 CPAV /L /S
```

Runs CPAV and scans all local drives except A and B one time per day. Even if the user reboots several times, CPAV won't scan the disk again.

Troubleshooting Central Point Anti-Virus

Here's what you'll find in this chapter:

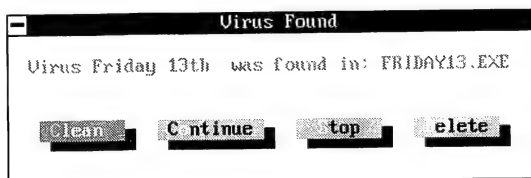
- **What Happens When Central Point Anti-Virus Finds a Virus?** helps you identify what occurs when a virus infects your system so you know how to proceed.
- **What is a Verify Error?** explains the Verify Error dialog box and its buttons.
- **Message Dialog Boxes** explains most of the messages appearing in the program in alphabetical order.
- **Miscellaneous Problems** explains solutions to general problems that may arise.

If you have a problem with the program that you cannot solve using the information in this and other sections of this manual, please complete the Technical Support Checklist on the *Central Point Registration and Support Card* before contacting our technical support department for assistance.

What Happens When Central Point Anti-Virus Finds a Virus?

In the following discussion, the variables *x* and *y* indicate file names or names of viruses. These are merely place holders.

The following dialog box appears when the program finds a virus:



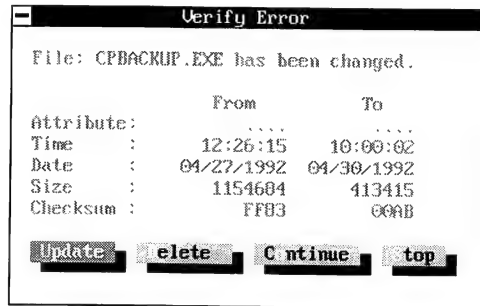
Occurs: In CPAV while scanning.

Cause: The virus xxxxx was found in the file *yyy.yyy* during a detect operation.

Solution: Choose Clean to clean the virus from the file and restore it to its original condition to minimize the possibility of infecting other files on your system. Choose Continue to ignore the virus and continue scanning the remaining files. Choose **Stop** to stop the scan and return to the Central Point Anti-Virus program. Choose **Delete** to erase the file from your system.

What is a Verify Error?

When you select the Verify Integrity and Prompt While Detect options from the Options dialog box, Central Point Anti-Virus alerts you with a Verify Error when an executable file changes, based upon statistics stored in the CHKLIST.CPS files. (Such changes in files can indicate the presence of a virus.)



Cause: During a scanning operation, Central Point Anti-Virus detected a change in the CHKLIST.CPS file for the file xxx.xxx. Because the change could be caused by a virus, the program notified you of the activity.

Solution: The dialog box provides some information about the detected change. This error may be the result of an intentional change you made. If you know you changed the file, you can choose **Update** to register the change.

Attribute is the DOS file attribute assigned to the file. Available attributes are: R for read only; H for hidden files; S for system files; and A for archive files. Archive attributes are used by backup programs such as Central Point Backup™ to determine which files to include in an incremental backup operation.

Time, **Date**, and **Size** indicate the time and date the file was last modified and the size of the file in bytes. Most likely, this information indicates changes made when you performed a legitimate activity on the file. Although some viruses modify this information when they infect a file, if VSafe is installed, you will be notified of any behind-the-scenes activity when it first occurred.

Checksum indicates information from the database in CHKLIST.CPS. If this information no longer matches, the file may have been altered by a virus.

If the attribute, time, or date has changed, you can choose **Repair** to return the file to its original condition. If the size or checksum changes, the **Repair** button changes to **Delete**. Choose **Delete** if a change occurred to the size or checksum even though you have not made a legitimate modification to the file.

If you know that the change is legitimate, choose **Update** to tell Central Point Anti-Virus that this change is permanent and to avoid receiving this message during subsequent scans. Or, if you know about the change but don't want to update Central Point Anti-Virus with this information, choose **Continue**. Choose **Stop** to halt the scan and return to Central Point Anti-Virus.

Preventing Unwanted Alerts

To prevent unwanted alerts when you install upgrades to current software, follow these precautions:

1. Scan the manufacturer's disks before you install the software.
2. Write-protect the floppy disks.
3. Install the software.
4. Scan the drive where you installed the software to update the CHKLIST.CPS files.

Message Dialog Boxes

Central Point Anti-Virus may generate messages to warn you of virus infection, suspicious activity on the system, or to give you general information.

Explanations of messages in this section are arranged alphabetically by the main text in the box.

NOTE *If you are using graphics mode to run Windows™ or another program, VSafe dialog boxes warning of suspicious activity cannot be displayed. Instead, an alarm sounds and the program attempting to load stops. If this occurs, run the Central Point Anti-Virus program to check for the presence of viruses or programs that were changed.*

Disk error in drive x: Cause: Drive not ready.

Occurs: In CPAV/BootSafe.

Cause: You requested an operation on a disk in drive x: but no disk is inserted.

Solution: Insert a disk in drive x:, make sure the drive's door is closed, and choose Retry.

Disk error in drive x: Cause: Disk is Write protected.

Occurs: In CPAV/BootSafe.

Cause: You requested an operation that requires writing to the disk in drive x: but the disk is write-protected.

Solution: Remove the write-protect tab from the disk in drive x: or insert a disk that is not write-protected.

Disk infected by the XXX virus. Please remove the diskette in drive A: Press any key.

Cause: If VSafe or VWatch is resident in memory when you reboot your computer, and a disk is in drive A, the disk's boot sector is checked before rebooting. If that disk has a virus, a message informs you that the computer will not be rebooted. This protects you from infecting your system from the floppy disk. If this disk is found free of boot sector viruses, the boot process will take place from drive A.

Solution Remove the disk from drive A and reboot. Then scan the disk with Central Point Anti-Virus to remove the virus infection.

File was destroyed by the virus!!! Recovery for this file is impossible. Delete this file in order to prevent further infection and damage?

Occurs: In CPAV, while scanning.

Cause: The virus that infected this file has destroyed vital information, making the file unusable. Central Point Anti-Virus cannot restore the file to its original condition.

Solution: Choose Delete to delete the infected file from the system. When the scan is complete, restore the deleted file from your most recent system backup and run Central Point Anti-Virus again to scan for viruses. Choose Stop to stop the scanning process and return to Central Point Anti-Virus. Choose Continue to ignore the situation and continue the scanning process.

Network Access not Allowed.

Occurs: In CPAV, while logging to a new drive.

Cause: You attempted to select a network drive and the Allow Network Access option is turned off.

Solution: Select Allow Network Access from the Options dialog box to turn it on. Enter the password if one is requested. If you do not have the password to turn on the Allow Network Access option, select a local drive to work with.

Program is trying to modify system memory. Do you wish to continue?

Occurs: In VSafe.

Cause: VSafe detected a program that is trying to modify the system memory without using the standard DOS calls for TSRs. This is generally an indicator that a virus is attempting to infect the system. However, some network drivers may load in a manner that generates this message.

Solution: If you know that a network program is being loaded after VSafe was loaded, choose Continue. The first time this occurs, run the Central Point Anti-Virus program to scan for viruses. This is an added safety mechanism to ensure that no virus is present.

If you are unaware of what may be causing the memory modification, choose Stop, then run the Central Point Anti-Virus program to check for viruses. Or, choose Boot, then restart your computer using the Central Point Anti-Virus distribution disk and run the Central Point Anti-Virus program to check the system for viruses.

Program is trying to stay resident in RAM. Do you wish to continue?

Occurs: In VSafe (warning #2).

Cause: The Resident option (option 2) is on in VSafe and the program has detected another program trying to load memory-resident.

Solution: If you know that another TSR is being loaded memory-resident by the AUTOEXEC.BAT file or through the command line after VSafe was loaded, choose Continue. To avoid seeing this message each time you start your system, edit the AUTOEXEC.BAT file to load VSafe after the other TSR, or turn off the resident option (option 2) in VSafe. See the *Ongoing Virus Protection* or *Central Point Anti-Virus Command-Line Options* chapter for information.

If you are unaware of another TSR attempting to load, choose Stop, then run the Central Point Anti-Virus program to check for viruses. Or, choose Boot, then restart your computer using the Central Point Anti-Virus distribution disk and run the Central Point Anti-Virus program to check the system for viruses.

Program is trying to write to floppy disk. Do you wish to continue?

Occurs: In VSafe (warning #3).

Cause: The General Write Protect option (option 3) is on in VSafe and the program now executing is trying to write to your disk.

Solution: If you expected the program to write to another file or to the disk, choose Continue. If there should be no modification of another file or the disk, it is possible that a virus is attempting to spread. In this case, choose Stop to cancel the operation, then run Central Point Anti-Virus to check for viruses before continuing to use the program. Use option 3 only when you suspect that a program is infected.

Resident programs were loaded after VSafe. Other TSRs may not function after unload. Do you wish to continue?

Occurs: In VSafe.

Cause: You pressed **Alt+U** from the control window. You attempted to remove VSafe from memory and one or more memory-resident programs were loaded after VSafe.

Solution: Before removing VSafe, remove any other TSR that was loaded afterward. Removing any TSR when others were loaded into memory after it can cause the system to hang. Choose Stop to leave VSafe resident in memory. Remove other TSRs from memory in the reverse order of their installation, then remove VSafe. To disregard this precaution, choose Continue. VSafe will be removed from memory, but be aware that TSRs installed after VSafe may be removed as well, and you may receive DOS error messages during subsequent operations. Choose Boot to restart the system.

Since a virus was detected, rebooting is recommended to minimize the possibility of further infection.

Occurs: In CPAV when exiting.

Cause: During a Central Point Anti-Virus operation, a virus was found. Even if the virus was cleaned from the system, this dialog box appears when you exit the program.

Solution: Choose Reboot to clean the system's memory.

The xxxxxx virus is known to infect DATA files and executable files. As a result, you should check all of the files on this disk. For your convenience, the Check All Files option (located in the Options dialog box) is turned on automatically when you leave this message. When this option is on, CPS Anti-Virus scans every file on the disk, including data files.

Occurs: In CPAV while cleaning.

Cause: The virus xxxxxx was found during a scan and you have turned off the Check All Files option. Because this virus can infect data files, the program will turn the Check All Files option back on for you.

Solution: This is an informational message. Choose Continue to turn on the Check All Files option. Then choose Detect or Clean from the Scan menu to check all the files on the disk.

Filename cannot be immunized. Choose Add to include the file name to the Exceptions list. OK will go on to the next file.

Occurs: In CPAV while immunizing

Cause: The file you are attempting to immunize cannot be immunized. The following types of files cannot be immunized: .EXE files containing overlays or other information at the end of the file (usually debugging information); .EXE files with a corrupted header; .COM files larger than 63K; files containing an independent self-checking system; Windows™ or OS/2™ files.


Solution: This is an informational message and requires no action on your part. Add this file to the Exceptions List.

Warning: Boot sector/partition table was modified.

Occurs: In BootSafe

Cause: Either a boot sector virus damaged your partition table or you installed software that modified your partition table, such as MS-DOS 5 or a disk-compression utility, such as Stacker. Disk-compression utilities cause this message to appear because they compress the files on your original drive C and reassign the drive designator.

Solution: If you have not installed any software that modifies the partition table, you may have a boot sector virus. Use your emergency disk to repair the disk. See "Using the Emergency Disk" in the *Build Emergency Disk* chapter in Volume 1 for details. If you are using a disk-compression utility, follow this procedure to reconfigure BootSafe to monitor the swapped drive (the decompressed drive).

1. Press  to continue when you see this message.
2. Edit your AUTOEXEC.BAT file to change the following line from:

C:\PCTOOLS\BOOTSAFE

to

C:\PCTOOLS\BOOTSAFE D:

(where D is the drive designator of your swapped drive).

3. Reboot your computer.

WARNING Do not choose the Rebuild option on a Stacker or other type of compressed volume. Doing so can cause data loss.

4. Press **U** to update the information in the image file the first time. Hereafter, you probably won't see this warning message unless you have a boot sector virus.

Miscellaneous Problems

A program no longer runs correctly after being immunized in Central Point Anti-Virus.

Cause: The program probably contains its own immunization and, when Central Point Anti-Virus adds its immunization code, it will not run.

Solution: Use the Full Menus of Central Point Anti-Virus to remove immunization on the program file or files to restore them to their original state. If the program is one you use frequently, you may want to add it to the Immunizations Exception list to prevent it from being immunized again. See the *Using Full Menus* chapter earlier in this manual for instructions.

CPAV.EXE file cannot be found.

Cause: If your original PATH= line ended in a space, the line in the AUTOEXEC.BAT file after installation will look something like this:

```
PATH=C:\ ;C:\DOS; C:\PCTOOLS;
```

Because DOS considers a space in the PATH= line a signal that the line is ended, the C:\PCTOOLS portion of the path is ignored.

Solution: Edit the PATH= line to remove the extra space and restart your computer.

Central Point Anti-Virus continually displays warnings that the boot sector, partition table, or both are being modified.

Cause: Some older Hewlett-Packard and Zenith computers modify the boot sector or partition table each time you start the system, as do disk-compression utilities such as Stacker. If you installed VSafe with any of the following options turned on, Central Point Anti-Virus continually displays warnings that the boot sector, partition table, or both are being modified.

- Boot Sector Viruses
- Protect HD Boot Sector
- Protect Floppy Boot Sector

Solution: Check your documentation to determine if the system automatically modifies the boot sector or partition table during startup. If so, disable BootSafe.

Central Point Anti-Virus does not display a warning dialog box in your DOS graphics program.

Cause: VSafe does not bring up a dialog box when you are running a program in graphics mode, instead an alarm sounds and the action stops.

Solution: Exit the program and run Central Point Anti-Virus to clean the infected file(s).

Microsoft Windows does not start.

Cause: Critical Windows system files are infected that prevent Windows from running.

Solution: Scan and clean all the drives on your system from the Install program in Central Point Anti-Virus. This is not a Windows-based program.

Pressing **[Alt][V] to invoke the VSafe control window doesn't work. Something else happens.**

Cause: This hotkey doesn't work in Windows. If you tried this from DOS, some other memory-resident program may be using the same hotkey combination and recognizing the command before VSafe gets a chance.

Solution: If in Windows, open the VSafe control window by choosing it in the Program Manager. If in DOS, exit the current application, if one is running. If VSafe was installed as a COM file from the AUTOEXEC.BAT file or the command line, remove it from memory by typing VSafe /U **[Enter]** at the DOS prompt. Then, reload VSafe, specifying a new hotkey combination. To do this, modify the AUTOEXEC.BAT file with the following line, or from DOS type

VSafe /Az **[Enter]**

substituting the new hotkey of your choice for z.

NOTE You can also use a **[Ctrl]** key combination by substituting /C in the above example.

See the *Ongoing Virus Protection* chapter earlier in this manual for more information on using VSafe.

Out of environment space

Cause: You have exceeded the amount of space specified by the SHELL command in the CONFIG.SYS file.

Solution: Consult your DOS manual for specific information on modifying your CONFIG.SYS file to increase your system's environment space designated by the SHELL command.

Some games' disks are not recognized correctly by the Central Point Anti-Virus Directory and Files in Directory windows.

Cause: Some games' disks do not use true DOS directory structures and Central Point Anti-Virus does not recognize them.

Solution: Because there are no true DOS files or directories on the disk, it cannot be infected by a file infector virus.

You run another manufacturer's anti-virus program and receive a virus alert from VSafe or VWatch that a virus is present.

Cause: With VSafe or VWatch installed, Central Point Anti-Virus sees the signature for a virus, not the actual virus.

Solution: Disable any other anti-virus program, and use the Central Point Anti-Virus program to avoid receiving these false alarms.

You forget the password you created for Central Point Anti-Virus.

Solution: Reinstall the software to create a new one.

When using Central Point Anti-Virus, the computer stops processing (hangs) while reading the directory structure.

Cause: The directory structure on the selected disk is damaged.

Solution: Exit the Central Point Anti-Virus program. If the computer is completely locked, restart by turning it off and back on again. Use DiskFix in or from DOS, type CHKDSK /F to correct any errors in the directory structure of the disk. Then, run the Central Point Anti-Virus program again.

Running in a Multitasking Environment

If you are using a menu program, add selections to "Scan a Floppy Disk" (CPAV A: /S) and "Scan Local Hard Drives" (CPAV /L). Then, when you want to scan a new floppy disk or periodically scan the hard drive to check for viruses, you can do so quickly from within the menu program.

Part 2

Central Point Backup

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About Central Point Backup™

If you have ever experienced data loss, you know the value of backing up. Sudden power failures, software problems, new operating systems, mechanical failures, and user mistakes can all lead to the loss of valuable data. An up-to-date backup ensures that you can restore data quickly and resume working.

Central Point Backup provides protection against data loss by allowing you to make a backup copy of data. The options let you customize a backup for your needs. With Central Point Backup, you can back up data using the following methods:

- **Full Backup:** Backs up all selected files.
- **Incremental Backup:** Backs up all files that have changed since the last full or incremental backup.
- **Differential Backup:** Backs up all files that have changed since the last full backup.
- **Unattended Backup:** Backs up your data to a tape, hard drive, or to a network volume at a time you specify.

After backing up, you can compare and verify data on the backup media with the source volume to ensure the backup is correct.

If you ever lose data because of a hardware failure or other problem, you can restore quickly and easily using Central Point Backup's smart restore capability.

Network Features

Central Point Backup can back up data to a network directory or to a SCSI or QIC-02/36 tape device attached to a file server. As a network supervisor, you can back up and restore the bindery, trustee rights, and extended file attributes of network data.

1. The first part of the document is a letter from the President of the United States to the Congress, dated January 1, 1861.

Configuring Central Point Backup

The first time you use Central Point Backup, you must configure the program to work optimally with your system. The type of drives you want to use, the choice of media, and a backup test are all part of the configuration process.

Here's what you'll find in this chapter:

- **Starting the Configuration** explains how to configure the program.
- **Performing the Confidence Test** explains how to test your configuration for reliability and performance.
- **Results of the Confidence Test** describes the outcome of the confidence test and a list of things to check if the test failed.

Starting the Configuration

The following procedure assumes you have installed Central Point Backup. See the *Installing PC Tools* chapter if the program is not installed.

During configuration, the program guides you through the process and saves your choices in a file called CPBACKUP.CFG in the \DATA subdirectory.

NOTE You must install Central Point Backup on a hard drive or network to use it. You cannot run it from a floppy disk.

Follow the instructions on the screen. If at any time you need help, press **F1**.

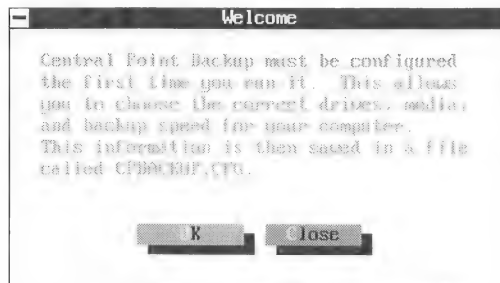


NOTE Remove any tape cartridge from your tape drive before configuring. This allows Central Point Backup to determine the actual size of your tape drive, rather than read the size of the tape.

1. From DOS, type

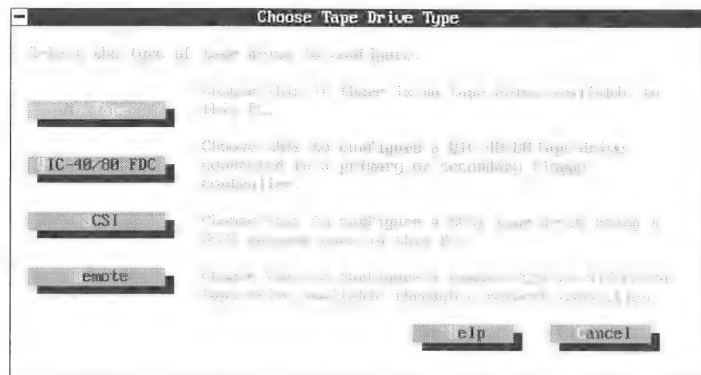
CPBACKUP **Enter**

The first time you run Central Point Backup, it displays a welcome screen:



2. Choose **OK** to continue or **Close** to exit the program.

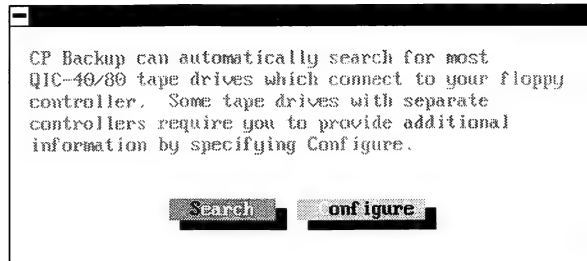
If you choose **OK**, the following dialog box appears:



3. Select one of the four options.
 - ▶ If you do not have a tape drive, or access to a tape device on a network server, select the **No Tape** button and skip to step 4.
 - ▶ If you want to use the Remote option, see the "Configuring to Use a File Server Tape Device" in the *Network Backups* chapter in this part.

QIC-40/80 or Floppy Disk Controller (FDC)

Select QIC-40/80 or FDC, and the following dialog box appears:



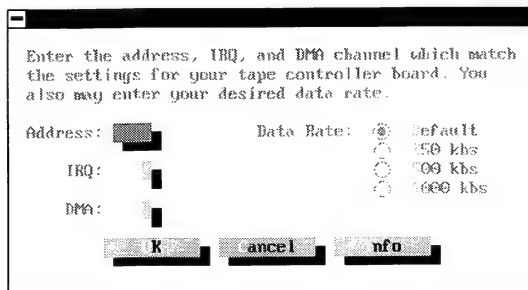
- ▶ Choose **Search** if you have a tape drive connected to your floppy controller card or to a tape adapter card that attaches to the floppy controller card. Central Point Backup scans your system for any supported tape drives. Skip ahead to step 4.

or

- ▶ Choose **Configure** if you have a tape drive connected to a separate tape controller card. This includes many QIC (Quarter-Inch Cartridge) tape drives.

NOTE You can configure only one tape device for use with Central Point Backup. If you have a QIC and a SCSI tape drive in your PC, you can select one to use for your backups. Selecting another drive overwrites the CPBACKUP.CFG file with the new tape device information.

The following dialog box prompts you for the correct information for your particular card. Consult your tape drive documentation for the correct settings to enter here.



Address: The base I/O address for your tape controller card. This is a 3- or 4-character hexadecimal number.

IRQ: The interrupt request level (IRQ) for your tape controller card. This is a one-character hexadecimal number.

DMA channel: The DMA channel (Direct Memory Access) for your tape controller card. This is a one-character hexadecimal number.

Data rate: The rate at which your tape controller card exchanges data between your tape drive and PC. Central Point Backup automatically sets the rate to the most reliable for your system, as indicated by the selected Default button.

If you are not sure of this information, select **Info**. A help screen appears, displaying the settings for several controller cards. (The values shown are default factory settings — your card may be configured differently.) Go to step 4.

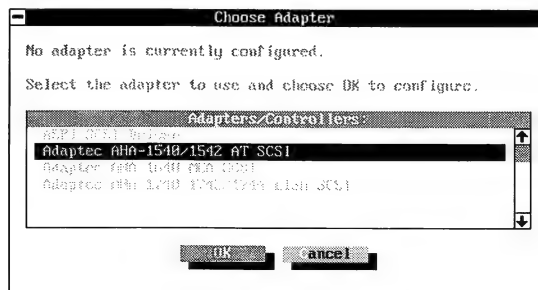
Small Computer System Interface (SCSI)

There are many devices that attach to your PC with a SCSI card, such as Bernoulli cartridge drives, optical disks, and tape drives.

NOTE If the device has a drive letter so that DOS recognizes it, do not choose the **SCSI** button. Central Point Backup automatically recognizes the device if you specify it in the Choose Drive and Media box, as described in steps 4 and 5. Devices that fall into this category include Bernoulli cartridge drives, LaserSafe optical drives, and SCSI hard drives.

If you have a SCSI card that connects a tape drive or optical disk drive to your PC, you need to configure the card so that Central Point Backup can recognize it. This means knowing the type of SCSI card you have, and entering the correct address of the SCSI card.

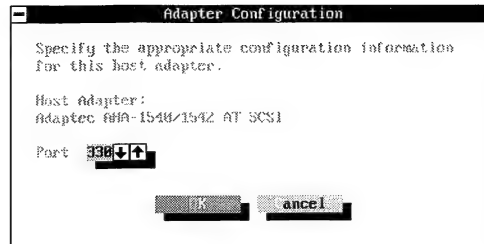
The Choose Adapter dialog box appears when you choose **SCSI**:



- Select the adapter card or ASPI manager you are using in your computer and choose **OK**.

NOTE If you are running multiple SCSI devices on a single host adapter card, see the "SCSI Information" section of the Troubleshooting Backup chapter.

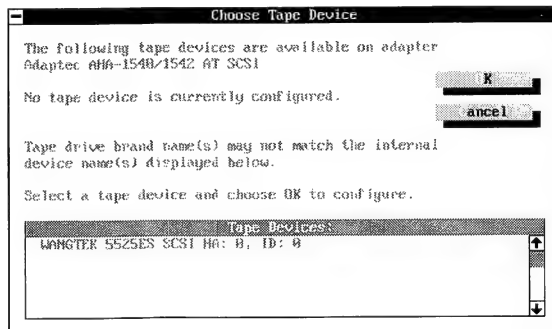
The following dialog box displays information about your host adapter card:



Refer to the documentation that came with your tape drive for the correct information to enter.

WARNING Each card must be configured with a unique port address. Failure to configure the cards correctly can result in a conflict with another device, create problems with the software trying to access the cards, and may cause data loss.

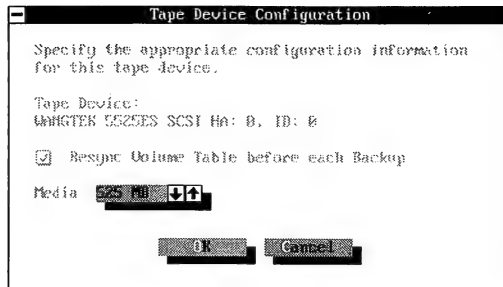
- ▶ Enter any requested information, and choose **OK**.



- ▶ Choose the tape device you want to use. In most cases, only one appears; however, a single SCSI card can support up to seven devices. You can select only one device from the list.
- ▶ Choose **OK**.

NOTE You can configure only one tape device for use with Central Point Backup. If you have more than one tape drive in your PC, you can select one to use for your backups. Selecting another drive overwrites the CPBACKUP.CFG file with the new tape device information.

The Tape Device Information dialog displays information about your tape drive:

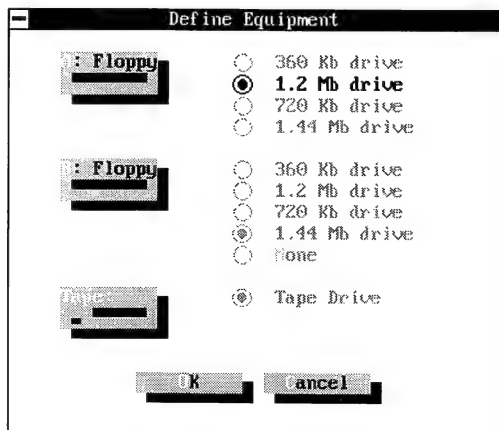


This dialog box shows information about your configuration. Therefore, what appears on your screen may be different than the illustration. Refer to the documentation that came with your tape drive for the correct information to enter.

Resync Volume Table before each Backup: Updates the volume tape catalog file (.VTC file) on your hard disk with the latest one on the tape. Leave this option on if you are sharing a tape with other users.

NOTE See the "Synchronizing the Volume Tape Catalog Files" section of the Tape Drive Information chapter in this part for more details on this option.

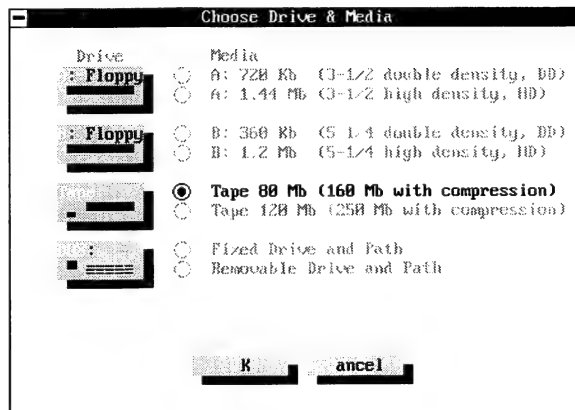
- ▶ Enter any requested information, choose **OK**, and go to step 4.
- 4. Choose **OK** if the drives displayed in the following dialog box are correct. This box shows only drives that support DMA (Direct Memory Access) backups.



A tape drive appears as an option only if Central Point Backup supports your tape drive.

The drive type is the physical type of disk drive (hardware) in your computer. The disk medium is the floppy disk or tape you use for this backup. For example, if you have a 1.2MB drive, you can use either 360K or 1.2MB disks to make a backup.

The next dialog box lets you select the media:



NOTE FOR SCSI USERS The Choose Drive and Media dialog box does not display the capacity of a SCSI tape. The choices for SCSI tape capacity appear in a subsequent dialog box.

5. Select the media type you plan to use for your backups.

WARNING Do not make 1.44MB backups to 720K media. Do not format a 720K disk as 1.44MB, even if your machine allows it. The disk may fail during use. Your backups may not be reliable if you use disks formatted in this way.

If drives A and B are the same type, an additional choice appears:

- () One Drive Backup
- () Two Drive Backup

Select **Two Drive Backup** to make your backup faster by eliminating the time waiting for disk changes.

NOTE If you select a two-drive backup, choose only one drive and media type. The program knows both drive and media are identical. The two-drive backup works only with drives A and B, only at high or medium speed, and only in backup mode.

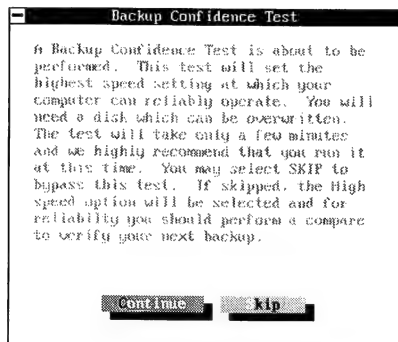
If you selected **Fixed Drive and Path**, or **Removable Drive and Path** in the last step, enter a path name. Type the path in the displayed text box. The configuration process is complete.

Performing the Confidence Test

The next dialog box explains the Backup Confidence Test. Central Point Backup performs high-speed (DMA) backups to floppy drives A and B, and supported tape drives only. If you want to back up or restore using floppy drives assigned letters other than A or B, or to any other DOS device, you must use low speed. A confidence test is not required in that case.

If you are backing up to a tape device connected to a network file server, a confidence test is not needed.

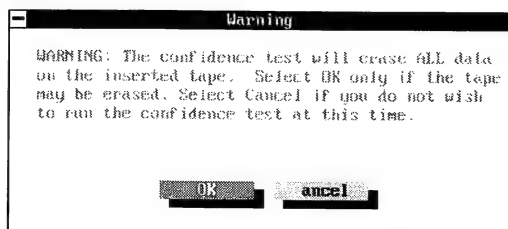
Central Point Backup tests your computer for the speed setting that gives you the best performance and reliability. This eliminates guessing whether your machine supports high-speed backups. Run this test on every computer, especially if you change the system environment in any way (such as adding or removing drives or using different media). That way, you can be sure that Central Point Backup always works with your current configuration.



If you want to skip the test, select **Skip**. Central Point Backup sets the speed to High automatically.

WARNING Skipping the confidence test may result in unreliable backups.

1. Insert a floppy disk or tape into the drive you selected earlier. Be sure that the disk or tape matches the media you selected, and that you don't care about the contents of the disk or tape (it will be overwritten).



2. Choose **OK**.

When the test is complete, a dialog box informs you of the results. The backup speed is set automatically to the fastest speed as determined by the test.

Results of the Confidence Test

Central Point Backup always tests your system at high speed first. If the test fails, it repeats automatically at medium speed. However, at times, some computers fail the high-speed test in such a way that prevents testing at medium speed. If this is your situation, check for the following items or conditions:

- Be sure there are no TSR (terminate-and-stay-resident) programs in memory that affect Central Point Backup.
- If you are running on a network, turn off the **Time Display** command (Options menu) and run the confidence test again.
- Some computers, especially 486-class machines, may have configuration problems with video drivers or hard-disk controller cards. See the *Troubleshooting Backup* chapter for suggestions.
- There may be hardware conflicts that are causing your system to fail the high-speed test. Try turning off your computer, removing such cards as network or fax boards, and retest at the high-speed setting.
- Some 286-class computers cannot use high-speed DMA because of limitations in their DMA logic. If you set the backup speed to medium or low, you get a reliable backup. Some older computers (such as the Zenith 286 Supersport models and the IBM PS/2 Model 30-286) require the lower-speed settings.
- Be sure you are using the medium you selected in the Choose Drive and Media dialog box, or try a different disk or tape (the one that failed may be damaged).
- Make sure your CONFIG.SYS file contains the following lines:
 BUFFERS=35 (can be lower if you use disk caching)
 FILES=30 (can be higher if required by other programs)
 STACKS=*n*, 128
 (where *n* = # of sectors/track — see the *Technical Information* chapter for details)

NOTE To see your CONFIG.SYS file, go to your root directory. Type "TYPE CONFIG.SYS" at the DOS prompt.

Retesting Your Machine

If you had difficulties with the confidence test during the initial configuration process, and have since corrected the problem, you can run the test again.

1. Choose **Backup Speed** from the Configure menu.
2. Choose **Test**.
3. Choose **OK** when the test is complete.
4. Choose **Save as Default** from the File menu to save the new information.

If Your Machine Fails the High-Speed Setting

1. Turn your machine off, then on, to reset the hardware.
2. Choose **Backup Speed** from the Configure menu.
3. Select **Medium**.
4. Choose **OK**.
5. Select several files to back up for the manual test.
6. Choose **Start Backup**.
7. Choose **Compare** when the backup is complete.

If all files compare, your computer can do safe, reliable backups at the chosen speed.

NOTE *The confidence test only checks the drive and media you selected. If you change the drive or media you use for backing up, test the new drive and media combination. Some systems can run at high speed with one type of media, but may need to use medium or low speed with other media to be reliable.*

Making a Backup

This chapter explains how to do a full backup of your hard drive using the default settings of Central Point Backup. If you are unfamiliar with backing up data or the options available, see the *Selecting Drives and Files* and *Selecting Backup Options* chapters in this part first.

Central Point Backup's Express feature simplifies your backup, compare, or restore procedures with a simple "point-and-click" interface that is functionally and visually similar to Central Point Backup for Windows.

When you are not using Express, the Tree and File Lists always appear. (See "Disabling Express" in the *Selecting Backup Options* chapter in this part for details.)

Central Point Backup also offers three experience levels: Beginner, Intermediate, and Advanced. The higher the level, the more commands you can use. To change your level, see the *Selecting Backup Options* chapter in this part.

Here's what you'll find in this chapter:

- **Starting Central Point Backup** explains how to start the program.
- **Backing Up All Files** summarizes the steps involved in performing a backup with the default settings.
- **Backing Up Data with a Preconfigured Setup File** explains how to use preconfigured setup files to make your backup easier.
- **Displaying the Directory Tree** explains how to see files and directories.
- **Disabling Express** explains how to turn off the Express feature so the directory tree is visible at all times on the screen.

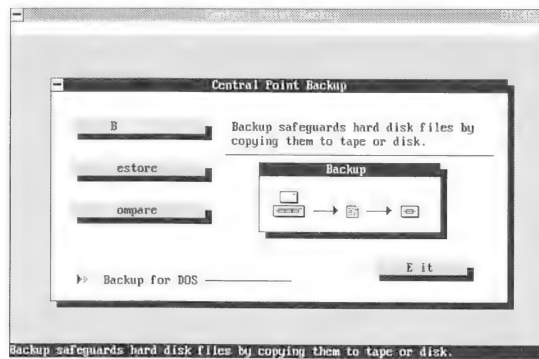
Starting Central Point Backup

The following procedure assumes you have installed and configured Central Point Backup and are ready to do a backup.

1. From DOS, type

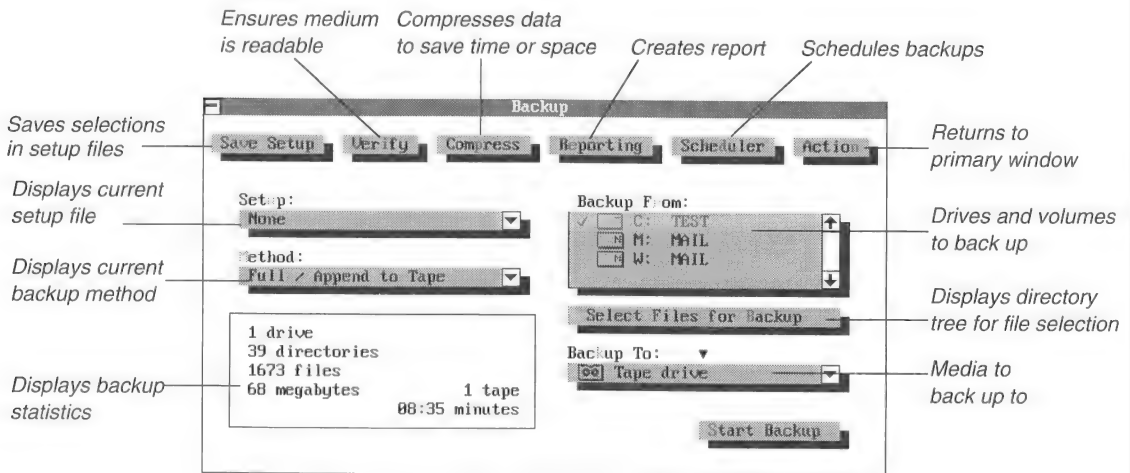
CPBACKUP 

The primary window appears:



2. Choose **Backup**.

The Express Window



Buttons enable you to perform certain menu options quickly. All of the button commands also appear on the pull-down menus. At the Beginner and Intermediate user levels, some of these buttons are dimmed, meaning the default value is used and cannot be changed. For full details on each command, see the *Selecting Backup Options* chapter in this part.

Backing Up All Files

Central Point Backup performs a quick scan of each local hard drive when you select it. This scan identifies problems that could potentially interrupt the backup or cause data corruption. If you would rather not scan each drive when selected, you can turn off the scan by selecting the **Drive Integrity** command from the Configure menu.

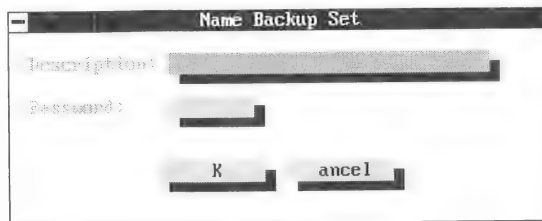
1. Select a drive to back up in the **Backup From** list (also available as **Backup From** on the Action menu).

By default, all files on that drive are selected, as indicated by a checkmark to the left of the drive icon.

or

Select specific directories and files to back up by choosing the **Select Files for Backup** button *or* double-clicking the drive icon in the **Backup From** list.

2. Select a backup destination in the **Backup To** drop-down list box (also available as the **Choose Drive and Media** command from the Configure menu).
3. Choose **Start Backup** (also available from the Action menu).



4. Type a descriptive name of up to 30 characters and an optional password, then choose **OK**.

Describe your backups uniquely. This description is what appears in the the History list or Choose Directory dialog box when you do a compare or restore, and can help you remember the correct history file to use.

WARNING Remember your password. If you attempt to restore a password-protected backup set, the program asks you for the password. If you forget or lose the password, you *cannot* restore your data. This password is different than the user-level password because it is specific to each backup, and is intended to prevent unauthorized restoring of your data.

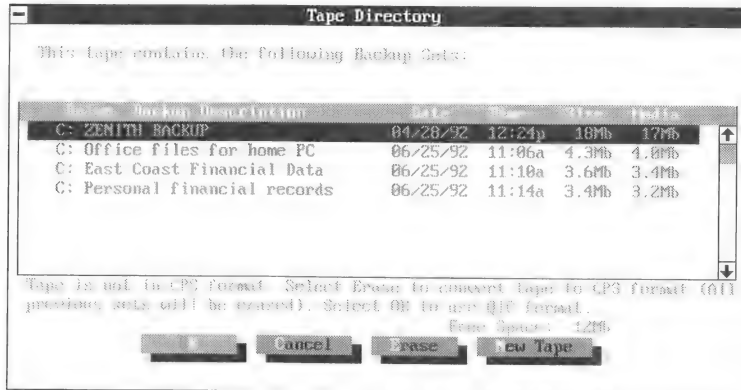
5. Insert the backup disk or tape into the drive when prompted. If you are using floppy disks or fixed media for your backup, skip ahead to step 6.

NOTE It is normal for the drive light to stay on continuously during a backup using high and medium speed. You will not damage your disks by inserting or removing them when you are prompted to do so, even when the drive light is on.



If you are using tape, do not remove the tape cartridge from the drive when the tape is moving. Doing so may damage the tape.

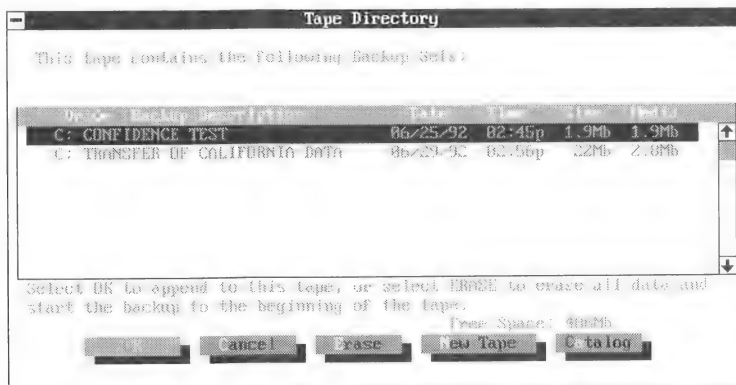
The following dialog box appears if you are using a non-SCSI tape:



A list of all the backups made to this tape appears in the box. The list contains the descriptions entered at the beginning of each backup. The list also includes the date and time of the backup, the size of the files on the tape, and the original size of the files. (These sizes may differ because of data compression and error correction code.) Skip ahead to step 6.

Remote or SCSI Tape

If you are backing up to a tape device connected to a file server, or using a local SCSI tape drive, the following dialog box appears:



A list of all the backups made to this tape appears. Choose **OK** to append to the tape, **Erase** to overwrite the tape, or **Cancel**.

NOTE If you are sharing a SCSI tape with other users, or backing up to a network tape, choose the **Catalog** button. This scans the tape for all backup sets, and updates the tape directory on your hard disk. See the “Synchronizing the Volume Tape Catalog Files” section of the Tape Drive Information chapter in this part for details.

If you select **Erase**, you may be prompted to enter the tape password (if it is password-protected). This is a security measure to prevent deletion of other backups on that tape.

- Once the backup begins, press **(Esc)** any time you want to pause or cancel the backup.

A dialog box displays options to **Resume**, **End**, or **Quit** the backup.

WARNING If you are using a SCSI tape, quitting the backup results in an unusable tape. The data can be recovered from the tape, but the tape must be erased before future backups can be written to it. Use the **End** option instead of **Quit** so the proper end of data markers are written to the tape.

When the backup is complete, the backup statistics appear.

You should perform a comparison at this point to be absolutely sure your backed-up data matches the original data exactly.

- Choose **Compare** to begin the comparison process.
See the *Comparing Data* chapter in this part for further details.

Backing Up Files using PC Tools Desktop Drag and Drop

Central Point's PC Tools Desktop, version 8.0, lets you back up files without having to select them from within Central Point Backup. See *Part 2 PC Tools Desktop of Volume 1* for details.

Backing Up Data with a Preconfigured Setup File

Central Point Backup comes with several preconfigured setup files. One, named WEEKLY.SET, does a full backup of all files on the first hard drive of your computer system, which is usually drive C. Other preconfigured setup files include SPREAD.SET, which backs up Lotus 1-2-3, Excel, and Quattro files on your first hard drive and WORDPROC.SET, which backs up many word-processing documents from applications such as Microsoft Word, WordPerfect, Lotus Write/Ami, and Lotus Ami Pro. The database set, DATABASE.SET, backs up files with extensions .DB, .DBF, .NDX, .IDX, .PX, and .DTF.

Select the setup file you want to use from the Setup Files drop-down list. You can modify the setup file to further customize it for your system and backup needs. If you make changes, choose the **Save Setup** button to save the new information.

Follow steps 3-7 of the "Backing Up All Files" section, earlier in this chapter.

See the "Setup Files" section in the *Selecting Drives and Files* chapter in this part for more information.

Displaying the Directory Tree

If you have used versions of Central Point Backup prior to Version 7, you are accustomed to seeing the directory tree at all times. Central Point Backup offers two ways of seeing the tree: in a pop-up tree from Express, or a tree that is always on the screen, with full access to every menu. Both trees display all the directories and files contained on the currently selected hard drive or history file, and allow you to make file selections.

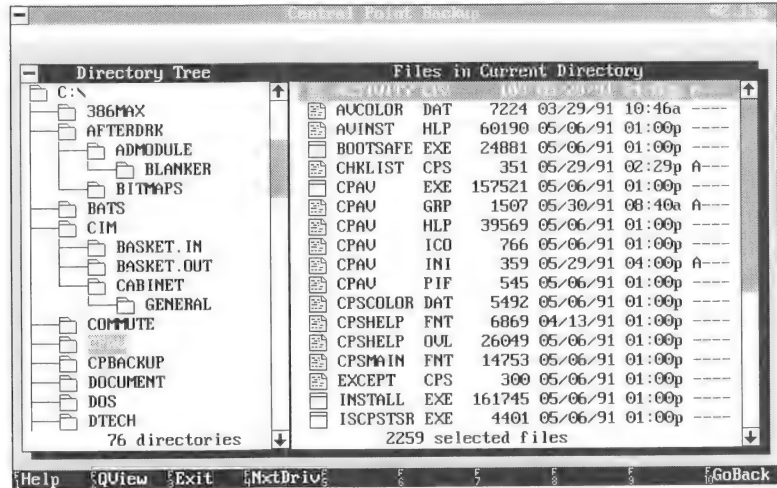
NOTE *Displaying the tree is not available at the Beginner user level in Express.*

Displaying the Express Tree

- Double-click the drive icon in the **Backup From** list box.
(Or press **[Enter]** when the highlight bar is on the drive.)

or

Choose **Select Files for Backup**.



- To display the next drive from the Express tree, press **[F4]**.

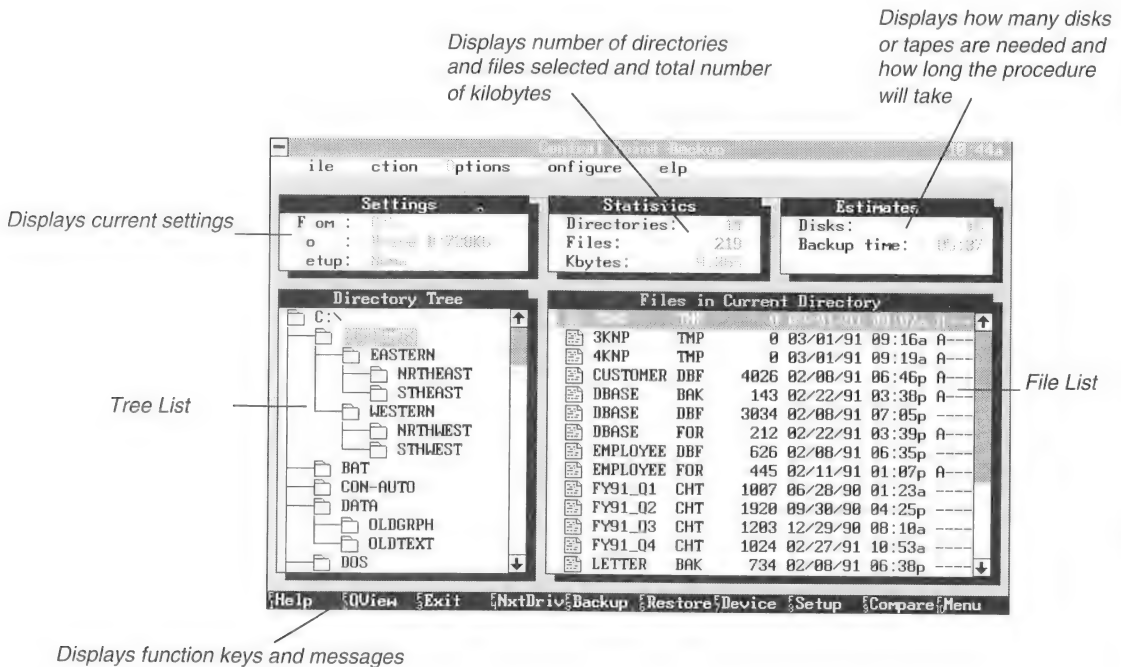
NOTE Pressing **[F4]** to display the next drive works only when you selected the drives from the Backup From list.

- Press **[F10]** or **[Esc]** to return to the selection window.

Disabling Express

- 1. Select **Express Interface** from the Configure menu.
- 2. Select **Save as Default** from the File menu.

Central Point Backup appears with the Tree and File Lists always visible in future sessions:



Selecting Drives and Files

Central Point Backup offers two ways of selecting files: automatically, with file filter commands, and manually from the tree. Once you make your selections, you can save the information in a setup file. This saves time because you don't have to repeat selections every time you back up, and you have the flexibility of defining multiple setups with different selections.

Here's what you'll find in this chapter:

- **Selecting Drives to Back Up** explains how to choose the drives you want to back up.
- **Novell Network Drive Display** explains how Central Point Backup displays Novell network volumes.
- **Selecting Files Automatically** explains how you can select multiple files automatically.
- **Selecting Files Manually** explains how to display the Tree List, select files, and disable the Express interface so the Tree and File Lists always appear.
- **Viewing Files** explains how to view the contents of files before backing them up.
- **Setup Files** tells you how to use setup files to avoid repetitious configurations.
- **When to Use Automatic File Selection** explains the way Central Point Backup processes files using the file selection filters and the backup method.

Many of the following commands are available only at the Intermediate or Advanced user levels. See the "User Level" section of the *Selecting Backup Options* chapter in this part for a table displaying each command and its user level.

Selecting Drives to Back Up

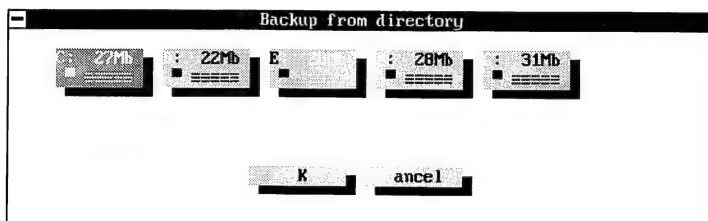
Central Point Backup displays all the storage devices it finds (such as hard drives, network drives, and Bernoulli drives) in the **Backup From** list. You can select multiple drives to back up at one time. A checkmark appears next to each selected drive in the **Backup From** list.

Selecting Local Drives

1. Select the drive(s) you want to back up in the **Backup From** list box.

or

Choose **Backup From** from the Action menu.



2. Select the drive(s) to back up.

When Express is disabled, additional options appear:

Allow Single Drive Backups: When selected, all drive icons dim except for the currently selected drive. The path box appears so you can type a specific path, for example, E:\ACCOUNTS. (The drive letter appears in the path box if you choose the drive icon first.)

Allow Multiple Drive Backups: When selected, the path box disappears. You can then select more than one drive to back up.

NOTE You cannot specify a path when the drives are displayed as server volume names.

3. Choose **OK**.

Displaying Multiple Drives with Express Disabled

The letters of the drives you have selected to back up appear in the Settings box when Express is disabled:

Settings	
From :	G: (DE)
To :	Tape drive
Setup:	None

The currently selected drive's directories appear in the directory tree window.

1. Press **F4** or **+** on your numeric keypad to display the next drive.
2. Press **Shift F4** or **-** on your numeric keypad to display the previous drive.

Multiple-Drive Backups

If your system consists of multiple drives, you may want to back up all of them during the same backup session. Central Point Backup processes each drive of a multiple-drive backup as separate backup sets.

For example, if you select drives C, D, and E to back up, Central Point Backup prompts you to insert disk #1. After drive C is backed up and the history file is written, you are prompted again to insert disk #1 of set #2. *Do not insert disk #1 of your just-completed backup.* Use a new disk. This disk becomes the first of the backup set for drive D. This process repeats for each drive of a multiple-drive backup.

Similarly, if you use tape, each drive creates a separate backup set on the tape.

NOTE *If you are using low speed, the Fixed or Removable Drive and Path options, and backing up multiple drives, each drive creates a subdirectory named X_DRIVE on the destination media (where x = drive letter) that contains the data for each drive.*

Novell Network Drive Display

If you are connected to a Novell network, you can choose how you want local and network volumes displayed in the **Backup From** list. Central Point Backup defaults to displaying drives by drive letters.

Many network volumes are mapped to a drive letter that is actually a specific path on a particular volume of a particular file server. For example, if you map drive G to the directory NOVELL\SYS:ACCTS\RECEIVE, you access that directory whenever you type G: at the DOS prompt.

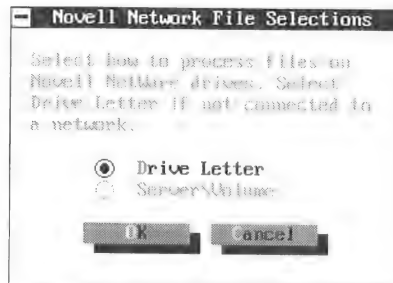
You can choose to display the server and volume name instead of a drive letter. By referencing network servers by name, you avoid confusion if the network drive mappings change.

For example:

This Drive	Indicates
Drive C	Local DOS drive.
Drive G	[SYS:ACCTS\RECEIVE] Mapped drive.
NOVELL\SYS: ACCTS	Single volume on a network drive.

NOTE Be careful when backing up and restoring files that appear as mapped drive letters. If the mappings change after the files are backed up, the files may not be restored.

- Choose **Novell Network** ► **File Selection** from the Configure menu.



Drive Letter: Displays logical drive letters, assigned by the NetWare Map command to a network volume.

ServerVolume: Displays network drives as true network volumes, rather than as logical drive letters.

If you want to back up an entire volume on a server, select the **ServerVolume** option, or make sure that the drive mapping for the backup is mapped to the root of the volume.

NOTE Central Point Backup allows up to 10 server volume drives in a setup file. See the "Setup Files" section later in this chapter for full details.

Selecting Files Automatically

There are several options that affect selected files: the backup method, manual file selections, and the following automatic file selection filters, grouped under the command **Selection Options**. These file filter commands are:

- **Manual Subdirectory Inclusion**
- **Include/Exclude Files**
- **Attribute Exclusion**
- **Date Range Selection**

Manual Subdirectory Inclusion

This command is on by default. This means any time you click a directory to select or deselect it (or press **Enter** when the cursor is on it), all subdirectories are also selected or deselected.

Including and Excluding Files

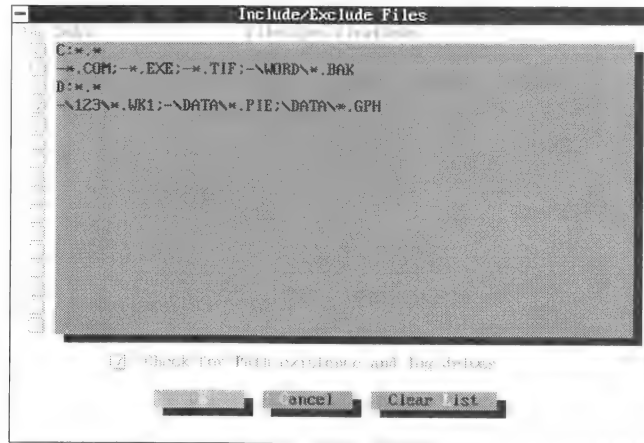
Include/Exclude Files is a very powerful, yet flexible command. Choosing it displays a text window where you can enter the list of drives, directories, and files to include or exclude for a backup. The default is *.* (all files selected).

Central Point Backup processes the files on your drive by looking at the include/exclude list and then the backup method. Then it selects files to back up accordingly.

Since the include/exclude list allows over 100 specifications, this is the recommended way to back up because it works with all backup methods — full, differential, and incremental. (See “Backup Method” in the *Selecting Backup Options* chapter in this part for details.)

WARNING File specifications in the Include/Exclude list are ignored when you check the **Save File Selections** option in the Save Setup dialog box. See the “When to Use Automatic File Selection” section later in this chapter.

1. Choose **Selection Options ► Include/Exclude Files** from the Options menu.



These are the guidelines for using the list:

- Use up to 16 lines of specifications. Each line supports multiple specifications, which must be separated by a space, comma, or semi-colon. Each line can have a maximum of 64 characters. All 16 lines cannot contain more than 100 specifications total.
- If you have multiple drives selected to back up, you can enter different specifications for each drive.
- Check the **Include Subdirectories** box next to each line if you want to back up nested subdirectories contained in the specification. For example, if your \WORD directory contained subdirectories named \DATA and \LETTERS:

Specification	Include Subdirectories?	What's Backed Up
C:\WORD*.*	Yes	All files contained in \WORD, \WORD\DATA, and \WORD\LETTERS
C:\WORD*.*	No	Only files contained in \WORD

- For multiple drive backups, each entry should begin with the drive letter it applies to; otherwise, the entry applies globally (to all selected drives).
- You can use DOS wildcard characters (* and ?).
- To exclude files from a backup, begin the entry with a minus sign (-). For example, typing -*.* on the first line excludes ALL files, allowing you to select specific directories and files to back up.

The list processes all specifications on a line before going to the next line.

2. Type the specific entries to include or exclude.

This table shows an example of what to type in the Include/Exclude Files dialog box.

To	Type This
Include all files on all specified drives except all COM and EXE files	*.*; -*.COM; -*.EXE
Log drive C and exclude all files in \TIFFS directory on drive C	-C:\TIFFS*.*
Log drive D and include all .EXE files on drive D	D:*.EXE
Log drive E and include all files on drive E	E:*.*

WARNING Do not enter mapped drive letters and server-volume names in the same include/exclude list. Errors may occur and drives may not be logged.

3. Select the **Check for path existence and log drives** box to be sure each drive logs and contains valid paths.

When you choose **OK**, each entry beginning with a drive letter is checked for validity and then selected.

4. Choose **OK** to continue or **Clear List** if you want to start over with your selections.

When you choose **OK** in the text window, all entries process from top to bottom down the list. Only the selected directories and files are highlighted when you display the tree.

Root Directory Special Exception

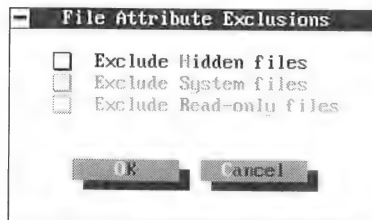
Central Point Backup complies with the subdirectory inclusion indicator except in the following situations:

Specification	Include Subdirectories?	What's Backed Up
**	Yes or No	All directories and files are selected, regardless of the setting of the Include Subdirectories flag
**	Yes or No	Only the files in the root directory are selected, regardless of the setting of the Include Subdirectories flag
C:**	Yes or No	Only the files in the root directory are selected, regardless of the setting of the Include Subdirectories flag

Excluding File Attributes

The **Attribute Exclusions** command acts as a modifier to the **Include/Exclude Files** command. For example, when you select a directory to back up and **Exclude Hidden Files** is marked, no hidden files in that directory are backed up.

1. Choose **Selection Options > Attribute Exclusions** from the Options menu.



2. Select the attributes you want to exclude, and choose **OK**.

Hidden Files: Hidden files (and directories) are usually a sign of copy-protection and may be position-sensitive on the hard disk. This means if you copy the files off the disk and onto another disk, they probably won't work because of the copy protection. In the event your hard disk crashes, you must re-install the program from the original disks.

System Files: These are your DOS system files (for example, IBMBIO.COM, IO.SYS, MSDOS.SYS, or some variation of this, depending on whether you have PC DOS or MS-DOS). Since they are DOS system files, you probably do not need to back them up as they are also position-sensitive.

TIP If you are backing up a drive prior to changing DOS versions, do not back up the DOS files. If you do, do not restore them.

Read-Only Files: Files you may open and use, but not modify in any way.

Setting a Date Range

The **Date Range Selection** modifies the include/exclude entries by letting you select files by date. Files are selected if their dates match the range set by the start and end dates you specify. **Date Range Selection** is off by default.

1. Choose **Selection Options ► Date Range Selection** from the Options menu.
2. Select **On**.
3. Type the range of dates using double digits:

mm/dd/yy or mm/dd/yyyy

Central Point Backup uses the date format that is standard in your country. For example, the US uses the format shown above. Enter the date as you would with the DOS DATE command.

4. Choose **OK**.

Selecting Files Manually

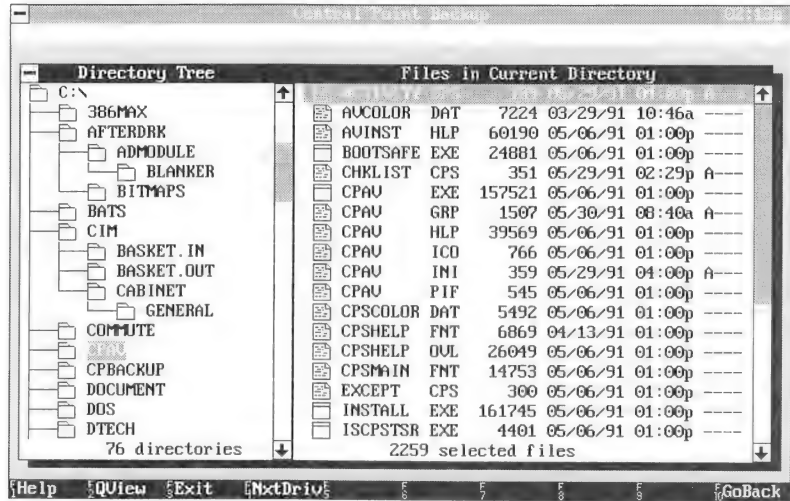
If you are accustomed to displaying your hard drive's tree structure to choose directories and files, you can pop up a directory tree from Express, or you can disable Express to use the tree exclusively.

NOTE Displaying the tree is not available at the Beginner user level.

The Tree List lets you select directories and files by clicking on each with the mouse, or using the **Tab**, **Enter**, and **↑**, **↓**, **→**, **←** to navigate around the tree and select files.

Displaying the Express Tree

1. Select a drive in the **Backup From** list.
2. Choose **Select Files for Backup** from the Action menu, or click the button.



When a directory is active in the Tree List, the files contained in that directory appear in the File List on the right. You can select or deselect individual files with the mouse by clicking, or with the keyboard.

3. Select the directories you want to back up with the mouse by clicking them or by using the keyboard:



- ▶ Use **[Left Arrow]** to move to the previous directory at the same level as the current directory.
- ▶ Use **[Right Arrow]** to move to the following directory at the same level as the current directory.
- ▶ Scroll the lower-level directories with **[Up Arrow]** and **[Down Arrow]**.
- ▶ Press **[Enter]** when the directory you want is highlighted to select all files in that directory.

The number of selected directories appears at the bottom of the Tree List and the number of selected files appears at the bottom of the File List.

Press **[Esc]** or **[F10]** to return to the Express selection window.

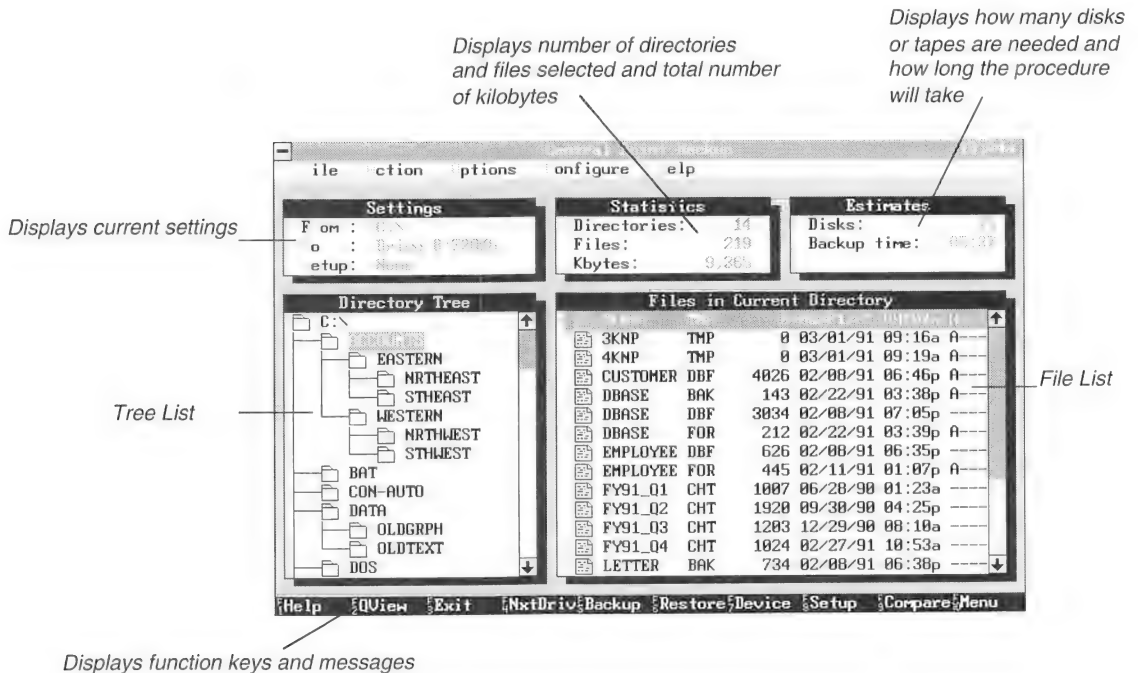
NOTE Monochrome users: A bullet appears to the left of each file that is selected.

Disabling Express

The directory tree always appears when you turn off the Express interface. If you prefer, you can disable Express so the tree always appears.

1. Choose **Express Interface** from the Configure menu.

The Tree List appears for the currently selected drive:



2. Choose **Save as Default** from the File menu.

This makes the Tree and File Lists always visible for future sessions.

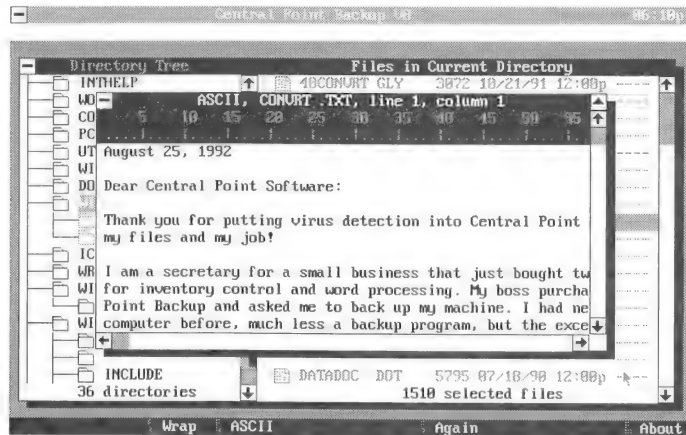
Viewing Files

Central Point Backup features viewers for many popular applications. The viewer automatically adjusts to display the correct file format (a spreadsheet display for spreadsheet files, for example). However, the viewer cannot let you edit the contents of the file.

Viewing a file can be especially useful if you have multiple files with the same names in different directories, or you cannot remember the contents of a file.

Central Point Backup can view word-processing files; spreadsheet files; database files; graphics files, such as those created in PC Paintbrush; and binary files, which contain executable code.

1. Select the file you want to view.
2. Press **(F2)** (**QView**).



QView Function Keys

QView uses the following function keys:

Function Key	What It Does
(F2) File Information	Displays information such as the name of the file, its size, and date.
(Shift F2) Database/Spreadsheet Information	Displays the name, type, and length of each field or cell in the current file. Select a field or cells to move the highlight in the View window to that location.
(F3) Exit	Closes the View window and returns to Central Point Backup.
(F5) Goto	Lets you specify the line number you want to go to in the file you are viewing.
(F6) Viewers	Displays a list of available viewers from which you can select a new viewer for the current file.
(F7) Search	Searches the viewed file for specific characters.

Continued

Function Key	What It Does
Shift F7 Search Again	Looks for the next occurrence of the search text.
F8 Unzoom/Zoom	Unzoom shrinks the View window to a smaller size. Zoom returns it to its previous size.
F9 Previous file	Views the previous file (if any) in the directory of files being viewed.
F10 Next file	Views the next file (if any) in the directory of files being viewed.

Setup Files

Setup files offer a way to save your selections for future use without having to go through repetitious configurations. You can load these setup files from the command line or from within Central Point Backup.

NOTE *You must have setup files to schedule unattended backups with the Scheduler.*

You can use setup files with all operations — backup, compare, and restore — to instantly configure Central Point Backup to the specifications contained in that setup file. This is especially important if you want to compare or restore a backup where you might not remember all the details about the setup you used at the time.

A setup file processes the files on your hard drive according to the criteria contained in that setup file. Although you can always see all files and directories on your hard drive when the Tree List is displayed, only the highlighted ones are used during a backup, compare, or restore.

The information contained in a setup file includes the settings for the following commands:

- Setup description
- Backup from (drive(s) and directories)
- Back up to (media size)
- Server\volume or Drive Mappings display
- Backup speed (high, medium, or low)
- Backup method (full, incremental, differential, full copy, separate incremental, or virus scan)
- Reporting (on or off)

- All directory and file selections
- Attribute exclusions
- Date range selections
- Overwrite warning (on or off)
- Compression
- Display options
- Error correction (on or off)
- Data encryption (on or off, and the type)
- Formatting options
- Save history (on or off)
- Verification option
- Virus detection (on or off)
- Exit when complete

Defining and Saving Setup Files

The **Save Setup** commands let you define and save multiple backup types and options.

NOTE *The Save Setup commands are not available at the Beginner user level.*

Save Setup As: Saves the selections you make during a backup session with a specific file name and the .SET extension.

Save Setup: Saves all current settings without prompting you for a setup name (thus overwriting the current setup file).

If you save setup files with specific file selections, using the Save File Selections option, another file with an .IEx extension (where *x*=drive letter) is also saved with its parent .SET file. The .IEx file includes all directory and file selections, and there is one .IEx for each drive saved.

Central Point Backup allows up to 10 server\ volumes in one setup file. The naming convention for these setup files is slightly different, depending on whether you log network drives as drive letters or server volumes. Network volumes logged as drive letters appear with an .IEx extension (where *x*=the drive letter). Network volumes logged as server volumes appear as .IEa, (where *a*=a number from 0 to 9). The server volume name is saved in the setup file itself.

NOTE If you are backing up server volumes to a QIC-format tape, be sure to turn on the **Save History** command. This ensures the name of the server volume is saved with the backup information on your hard disk. Because of the QIC-format design, server volume names cannot be saved on the tape itself.

Saving Setup Files

1. Choose **Save Setup** (also available as **Save Setup As** from the File menu).



2. Enter the name to use for this backup configuration.
3. Enter a description of this setup file, using up to 32 characters.
4. Select the **Save File Selections** checkbox if you made specific file selections.

Two options then become available:

Save to include all future directories and files on drive(s): Automatically backs up any new directories or files you add anywhere on your hard disk.

Save to exclude all future directories and files on drive(s): Prevents automatic backup of any new directories and files added to your hard disk.

5. Choose **OK**.

NOTE If you are using or plan to use the differential, incremental, or separate incremental backup method, use the **Include/Exclude Files** command to select the files you want to back up. Use the **Save File Selections** option with the full backup method only. See the "When to Use Automatic File Selection" section later in this chapter.

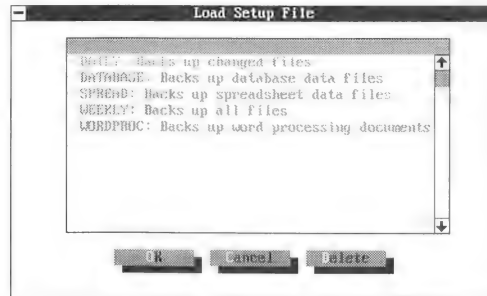
Loading Setup Files

Load Setup lets you select and load a previously saved backup configuration. If you have saved setup files from previous versions of Central Point Backup, you may load and use them with this command.

1. Click **Setup**.

or

Choose **Load Setup** from the File menu.



2. Select the setup file to use for this session, and choose **OK**.

Preconfigured Setup Files

Central Point Backup includes several preconfigured setup files. One, named WEEKLY.SET, does a complete backup of all the files on the first hard drive of your computer system, which is usually drive C. Another file, DAILY.SET, backs up only those files that have changed since the last full backup.

The following table shows other preconfigured setup files:

Preset File Name	Files Backed Up
DATABASE.SET	*.DB
	*.DBF
	*.NDX
	*.IDX
	*.DTF
	*.RBF
SPREAD.SET	*.PX
	.XL
	.WK
	*.CAL
	.WQ
WORDPROC.SET	*.DO*
	*.STY
	.WP
	*.WRI
	*.JW
	*.SAM
	*.TXT

Use these setup files as a foundation to customize for your particular needs and system. Be sure to save any modifications you make.

When to Use Automatic File Selection

Central Point Backup processes the files on your drive by looking at the include/exclude list, and then the backup method. Then it selects files to back up accordingly.

However, if you save specific file selections in a setup file with the Save File Selections option, Central Point Backup *always* backs up these files, regardless of the backup method.

This means that the Save File Selections option and the Include/Exclude Files option are mutually exclusive. File specifications in the Include/Exclude Files list are ignored when the Save File Selections option is on. You must use one option or the other in a specific setup file.

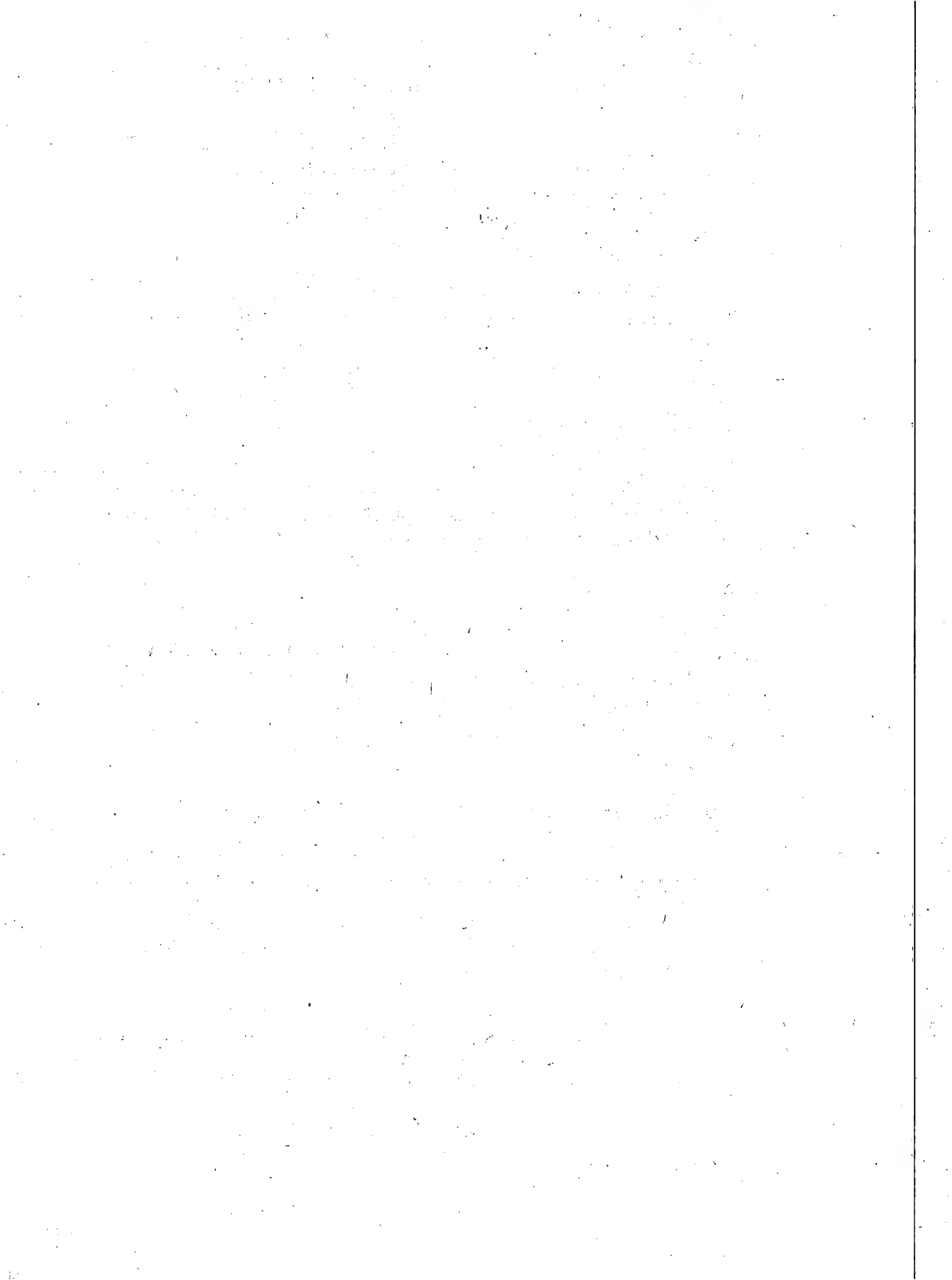
Include/Exclude Files

Since the include/exclude list allows over 100 specifications, this is the recommended way to back up because it works with all backup methods — full, differential, and incremental. (See “Backup Method” in the *Selecting Backup Options* chapter in this part for details.)

Use the include/exclude list until your list gets so specific that it hits the 100 specification limit, *then* use Save File Selections.

Save File Selections

If there are specific files that you always want to back up, regardless of the setting of the backup method, use **Save File Selections** in the Save Setup dialog box.



Selecting Backup Options

Central Point Backup makes it easy for you to back up the data on your hard disk safely and quickly, using the default settings. However, the many options available let you customize the backup process to meet your needs.

Here's what you'll find in this chapter:

- **File Menu Commands** explains how you save program defaults, print history files, and exit the program.
- **Action Menu Commands** explains how to change to the backup, compare, and restore modes, and select files.
- **Options Menu Commands** explains how options such as compression, verification, and virus scanning affect your backup.
- **Configure Menu Commands** tells how to control the operation and settings of Central Point Backup, including drives, media, backup speed, and user level.
- **Tape Tools Commands** offers tape-specific commands for formatting, erasing, retensioning, and viewing tape information.

All of the commands shown in the Express window are available as commands from pull-down menus.

File Menu Commands

The File menu lets you save and load setup files (discussed in the previous chapter), save defaults, print a backup directory, and exit from the program.

Save as Default

The first time you run Central Point Backup and configure it to your system, the selections you make are saved in a file called CPBACKUP.CFG. By choosing **Save as Default**, Central Point Backup automatically saves the new information over the old .CFG file.

Print History

Every backup you perform creates a history file that contains, among other things, the list of files that were backed up, when they were backed up, and the type of backup performed. Turning on the **Save History** command also saves the history file to your hard drive.

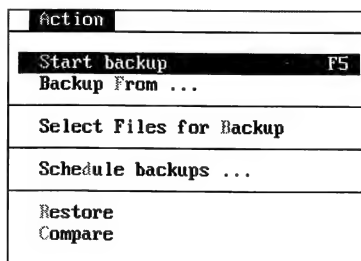
Print history lets you select a history file from the hard disk and print the directory of that backup. You can print to a text file or printer, depending on the setting of the **Reporting** command. (See “Reporting” later in this chapter.)

Exit

Exit quits Central Point Backup. You can also exit by pressing **(F3)**, selecting Exit from the System Control menu, or pressing **(Esc)**. The Exit dialog box lets you save your current settings as the default, if you activate the checkbox.

Action Menu Commands

The Action menu changes, depending on the mode you are working in: backup, compare, or restore. The menu contains the commands to start each process, select source drives for backup, select files (discussed in the previous chapter), and schedule backups.



Start Backup

Start Backup begins the backup process. If Express is disabled, you can press **(F5)** or click the word **Backup** in the Message Bar at the bottom of the screen.

Backup From

This command lets you choose drives or specific paths to back up. It is discussed in the *Selecting Drives and Files* chapter in this part.

Select Files for Backup

This command displays the Tree List of the selected drive. If you do not select a drive, then the first drive in the Backup From list is read and its directory tree appears.

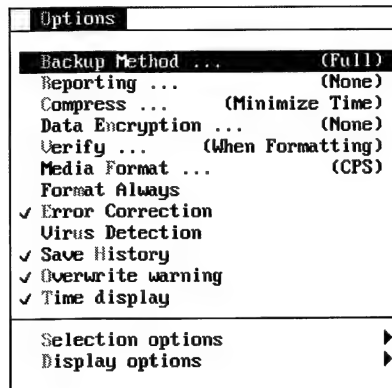
When Central Point Backup is in compare or restore modes, the Select Files command lets you choose specific files from the directory of backed-up files (the history file) to compare or restore.

Schedule Backups

This command lets you schedule backups to occur at specific times and is discussed in the *Scheduling Backups* chapter later in this part.

Options Menu Commands

The Options menu contains most of the commands that directly affect your backup, such as compression, data encryption, verification, and virus scanning.



Backup Method

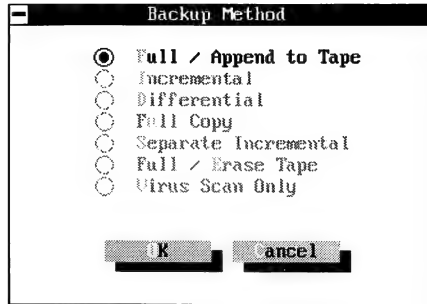
Backup Method lets you select the type of backup you want to do. See the *Backup Methods* chapter in this part for complete details on each method and suggestions for how to use them. Only full backups are allowed at the Beginner level.

NOTE The backup method works in conjunction with the Include/Exclude Files command to select files to back up. See "When to Use Automatic File Selection" in the *Selecting Drives and Files* chapter in this part for a full explanation.

1. Select the **Method** drop-down list box.

or

Select **Backup Method** from the Options menu.



2. Select the method you want to use, and choose **OK**.

NOTE The Incremental method is not available for low-speed backups, SCSI tapes, and QIC-format tapes. In these cases, use the Separate Incremental method.

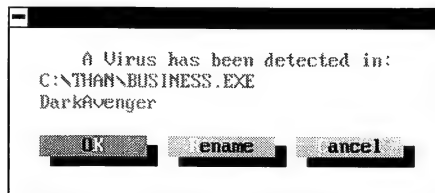
Virus Scanning

When you select this method, a scan of all the selected files and directories checks for viruses. This scan cannot detect boot sector viruses or viruses that are in memory — it can only detect infected files.

1. Select **Virus Scan Only**.
2. Choose **Start Backup**.

(This initiates the virus scan before starting a backup.)

The scanning of all selected files begins. If there is an infected file, you have three options:



OK: Continues with the scan.

Rename: Marks the infected file with a .Vnn extension (where nn=number between 00 and 99) and excludes it from that backup for the current session.

Cancel: Stops the scan and returns to the selection window.

See the “Virus Detection” section later in this chapter for more details about virus scanning.

Reporting

If you choose **Reporting** before starting your backup or compare, a report is generated after the process is complete. You can direct this report to your printer for instant hard copy or to a text file on your disk. The default for generating a report is off.

The extension for reports generated by Central Point Backup varies, depending on the process that occurs when Reporting is on. A backup report ends with .RPB and a comparison report ends with .RPC.

Backup and comparison reports are given a distinctive name automatically. The name contains the letter of the drive being backed up, and the year, month, and day of the backup. The name also tells you the sequence of the backup, for example, the second backup of the day. In the case of multiple-drive backups, each drive has its own report.

The format of the name is XYYMMDDA.RPx. Broken down to its component parts, it means:

X: Drive letter from A-Z for the drive backed up (or ^ for server\ volumes).

YY: Last two digits of the current year.

MM: Current month, expressed as a two-digit number (01–12).

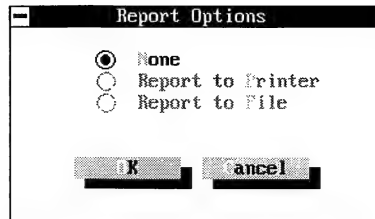
DD: Current day, expressed as a two-digit number (01–31).

A: Nth backup of the day. A is the first backup, B is the second backup, and so on. The sequence can extend out to Z.

.RPx: x=B for a backup report and C for a comparison report.

For example, C920906A.RPB means that you backed up drive C on September 6, 1992 and requested a backup report for the first backup of the day.

1. Choose **Reporting** (also available from the Options menu).



2. Select one of the three options.
3. Choose **OK**.

Compress

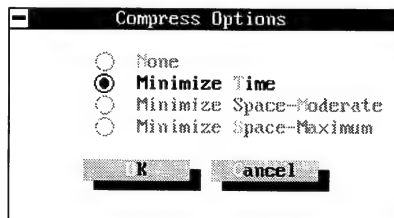
Compress lets you select the type of compression to use during a backup. Compression is available on either kind of backup — DMA or low-speed format — and any kind of supported media, such as tape or floppy disk.

Central Point Backup does not compress files that are already compressed. Whenever it finds files with one of the following extensions, it backs up the file, but does not compress it:

.ZIP .PAK .SEC .SQZ .LZH .ARC

NOTE If you are backing up to a SCSI tape drive that compresses, turn off Central Point Backup's compression. If you use the compression option offered by your SCSI tape drive, you can restore the data only to a machine with the same drive and the same type of compression.

1. Choose **Compress** (also available from the Options menu).



2. Select one of the four options and choose **OK** to continue.

None: Uses no compression at all. This uses the most disks.

Minimize Time: Minimizes the amount of time required to back up your files. This option compresses data as much as possible, without causing the backup device to slow down. Therefore, you use fewer backup disks or tapes or less disk space than if you did not use compression. The default setting is on.

Minimize Space-Moderate: Compresses the data it writes to the backup media to minimize the space it takes, which in turn reduces the number of disks or tapes used. This option offers greater compression than the Minimize Time option, and may decrease the overall backup time on high-end computers. Generally, the Minimize Space-Moderate option causes the overall backup time to take longer.

Minimize Space-Maximum: Provides the maximum amount of compression of data. **Maximum** takes more time, but if media space is critical, this is a good option to use, especially for an unattended backup.

NOTE If you are using low speed, there is no difference between the Minimize Space and Minimize Time compression options.

Data Encryption

This command encrypts your data during the backup process. File encryption “scrambles” a file so its data is unreadable until it is decrypted (unscrambled). When you use Data Encryption, the entire backup set is encrypted, not just selected files.

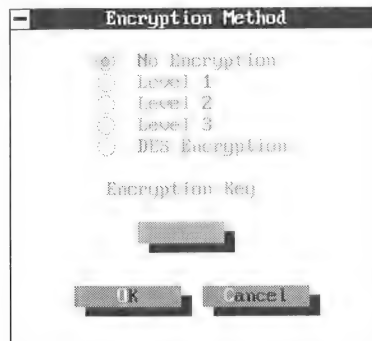
Encrypting your data can make subsequent comparisons and restoring of the data more time-consuming because of the time needed to decrypt each file in the backup set.

WARNING Previous versions of Central Point Backup cannot restore or compare encrypted data.

If you use a QIC 40/80 tape, and encrypt the data, other QIC-compatible drives or backup programs cannot read the tape.

You cannot rebuild the directory of an encrypted floppy backup set if the directory becomes damaged or lost.

1. Choose **Data Encryption** from the Options menu.



2. Select one of the encryption options and choose **OK** to continue.

No Encryption: Does not encrypt the data. This is the default setting.

Level One: Performs minimal encryption and requires an encryption key.

Level Two: Performs a more complex encryption of the data and requires an encryption key.

Level Three: Performs maximum encryption and requires an encryption key.

DES Encryption: Performs maximum encryption using the government-endorsed Data Encryption Standard (DES) algorithm. This is the most secure form of protection, but also the slowest, and requires an encryption key.

Encryption Key: Lets you decrypt your data. The key must be at least six characters, up to a maximum of eight-characters long. The **OK** button becomes enabled after you enter six characters.

Do not use your name, address, or other personal information as the key for your sensitive data. A good key is one that is impossible to guess. Use the first or second letter of each word of your favorite phrase or poem. For example, your key may look like this — NITTFAGM (Now Is The Time For All Good Men).

Use this key for all future encryptions. Since this key is set automatically when Central Point Backup runs, scheduled and unattended backups can occur without prompting for the key.

WARNING Remember the key you use if you change it from session to session, or you cannot decrypt the data. If you change the key when doing incremental backups, you are prompted for the original key of the parent full backup when you want to compare or restore the data.

Verify

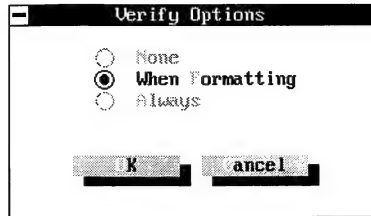
Verification is a way of making sure your backup disks or tapes are readable. Verify does not compare the backup data to the original data — it checks whether the data written to the backup disk or tape is readable. Use the Compare command for a bit-by-bit comparison.

Leave the Verify when Formatting option turned on. Each time you add a new disk or tape to the backup set and it is formatted, it is also verified. This provides you with a high degree of confidence in your backup media with a minimal impact on performance.

1. Choose the **Verify** button.

or

Choose **Verify** from the Options menu.



2. Select one of the three options and choose **OK** to continue.

None: No verification.

When Formatting: Verifies newly formatted disks or tapes. Once a disk or tape has been verified and you know it is good, you can be reasonably sure that future uses of the disk or tape by Central Point Backup results in a readable backup. The default is on.

Always: Always verifies that the data written to a disk or tape is readable.

If you are using tape, selecting Verify Always performs an additional function. After your backup is complete, the backup files are compared with the original files on the hard disk. This comparison happens automatically only if the Verify Always option is on.



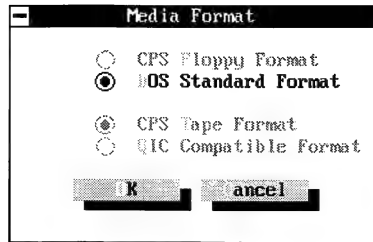
Media Format

For high- and medium-speed backups, you have two choices as to how to format the disk or tape:

- Central Point format (Proprietary for disks and tapes)
- Standard format (DOS for disks; QIC for tapes)

NOTE If you plan to interchange tapes with non-Central Point Backup programs, you may need to set compression to None or Minimize Space. Some older software programs cannot read tapes made with the newer QIC compression techniques.

1. Choose **Media Format** from the Options menu.



2. Select the type of formatting you want to use, and choose **OK** to continue.

CPS Floppy Format: Uses a special formatting process that allows an additional sector of data per track over that of a normal DOS disk. You can use the DIR command to display the disk contents, but a warning appears in the directory that it is not a standard DOS disk. This option uses fewer disks for a backup.

DOS Standard Format: Contains the DOS standard number of sectors per track. The advantage of the DOS format is that all your backup disks are easily readable by DOS. You can use standard DOS disks as backup disks without having to reformat them.

CPS Tape Format: Use this format if you have used previous versions of Central Point Backup and you want your tapes to be compatible or want to perform incremental backups to tape.

QIC-Compatible Format: Supports the popular QIC-40/80 configuration, which allows you to freely interchange tapes from other backup programs with Central Point Backup.

Format Always

Your disks or tapes are formatted regardless of previous formatting if you turn on Format Always. Central Point Backup formats the media according to the choice you made in the Choose Drive and Media dialog box. The default for Format Always is off.

The Media Format command determines the type of formatting (DOS, CPS, or QIC).



If you are using tapes and turn on Format Always, your backup takes considerably longer. Tape formatting is a multiple-stage process and takes a lot of time. Use the Format command from the Tape Tools menu.

NOTE *There is no need to format SCSI tapes because Central Point Backup formats them as necessary during a backup.*

You must use preformatted media for drives other than A and B or supported tape drives.

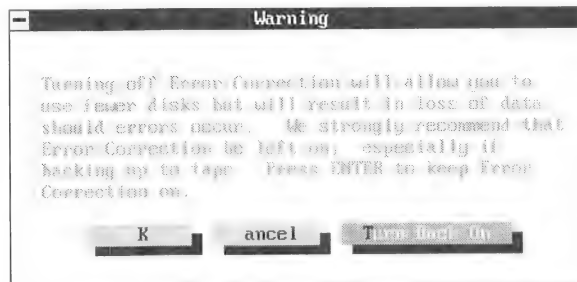
Error Correction

When you turn on Error Correction (default), Central Point Backup uses an advanced error correction method that recovers up to 158 errors on damaged disks, even if the damage occurs after the backup. Data is recovered even with up to two errors on every track of the disk.

Tape error correction recovers up to three errors per block. A 120MB tape contains 4200 blocks, meaning the tape can have up to 12,600 errors and Central Point Backup still recovers data. To do this, extra error correction information is stored on the tape along with the backed-up files. This is a valuable function, but because this data security process involves extra work, backups take a little longer and use more tape with this option turned on.

Leave Error Correction on for all backups, especially if you are backing up to tapes.

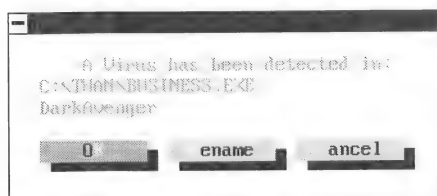
The following warning appears if you have turned Error Correction off before starting your backup:



Press **Enter** or **T** to turn **Error Correction** on.

Virus Detection

Virus Detection is off by default. When on, a scan of all the selected directories and files occurs before the backup. This scan looks for and detects infected files only — it cannot detect boot sector viruses or those that hide in memory. If there are infected files, you have three options:



Rename: Marks the infected file with a *.Vnn* extension (where *nn*=number between 00 and 99) and excludes it from the backup for the current session.

OK: Continues with the backup (including backing up the infected file).

Cancel: Stops the backup and returns to the selection window.

The virus scan process uses the same internal database that other Central Point products use, including Central Point Anti-Virus, to recognize all known viruses at the time of manufacturing. Central Point Anti-Virus not only detects and cleans viruses, but immunizes as well.

Central Point Software updates this database routinely to include new virus-detection information as it is discovered. To keep the virus-checking abilities up to date, download the latest virus signature file from the Central Point BBS or the Central Point Forum on CompuServe. Just copy the signature file into the directory where Central Point Backup is installed.

Scan your drives for viruses at least once a week before initiating a backup. You can do this by selecting the Virus Scan Only option from the Backup Method command. See "Virus Scanning" earlier in this chapter.

Save History

A history file for each backup you make is written to the backup disk or tape when the backup is complete. When Save History is on (default), the history file is also written to the hard disk. This history file contains, among other things, the list of files that were backed up and the date and time they were backed up.

If Save History is off, the history file must be read from the backup disk or tape before you can restore or compare.

However, with Save History on, you don't have to worry about inserting the backup media because the history file is read directly from the hard disk. This makes a comparison or restoring faster.

When you want to perform a comparison or restore, look in the History drop-down list to see all history files on the hard disk.

Selecting a History File

1. Choose **Compare** or **Restore**.
2. Select the **History** drop-down list.
3. Select the history file you want.

If there are no history files on the hard disk, you can use the Retrieve History command. See the *Restoring Data* chapter in this part for details.

Other Directory Files (Tape Backups Only)

If you are backing up to a SCSI tape, or to a tape drive connected to a network server, additional files are also created. These files have .CAT and .VTC extensions (for catalog and volume tape catalog respectively). Every SCSI and QIC-02/36 backup creates these files. To successfully compare or restore data from a SCSI or QIC-02/36 tape, all the directory files must be present — the .CAT, .DIR, and .VTC files.

Deleting Old History and Catalog Files

If you re-use old backup disks or tapes, Central Point Backup deletes the history and catalog files of the older backup sets from the hard disk. The following describes how to recognize and delete these files manually.

Both history and catalog files have a naming structure similar to the reports created by Central Point Backup. The format of the file name XYYMMDDA.DIR and XYYMMDDA.CAT broken down to its component parts is:

X: Drive letter from A-Z for the drive backed up (or ^ for server\volumes).

YY: Last two digits of the current year.

MM: Current month, expressed as a two-digit number (01–12).

DD: Current day, expressed as a two-digit number (01–31).

A: Nth backup of the day. A is the first backup, B is the second backup, and so on. The sequence can extend out to Z.

.DIR: Extension that indicates a history file.

.CAT: Extension that indicates a catalog file (SCSI only).

To delete these files from your hard disk, use the DOS DELETE command.

- Go to the directory that contains the history and catalog files you want to delete, then type:

DEL *.DIR

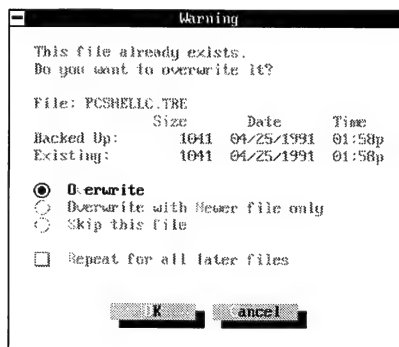
DEL *.CAT

Overwrite Warning

The Overwrite Warning command alerts you when

- the disk you inserted during a backup operation was used in a previous backup or may contain data.
- existing files on the hard disk may be overwritten during restoring.

The options available in the Overwrite Warning dialog box (which appears in restore mode only) are as follows:



Overwrite: Overwrites the existing file on the hard drive with the one being restored.

Overwrite with Newer File Only: Overwrites the file on the hard disk *only* if the file on the backup set is newer. This leaves all the most current files on the hard disk after restoring.

Skip this File: Prevents overwriting the file.

Repeat for All Later Files: Works in conjunction with one of the first three. If you know you want to overwrite all files, select **Overwrite** and **Repeat for all later files**. If you want to overwrite older files with a newer version, select **Overwrite with newer file only** and **Repeat for all later files**. If you do not want to overwrite any files, select **Skip this file** and **Repeat for all later files**. This restores only files that don't already exist on the hard disk.

WARNING Always keep the Overwrite Warning command on to prevent overwriting data. During a backup, you are alerted if you insert a disk with data on it, and while restoring, you won't overwrite existing files on your hard disk without first being warned.

Directory Attributes

If you attempt to restore a directory that already exists, you are notified if the directory attributes do not match.

Time Display

The **Time Display** command (Advanced level) toggles on or off the display of elapsed time during a backup. This command is provided to handle some networks, TSRs, and some PCs where the use of a timer may result in a conflict.

Selection Options

This command displays a submenu with options for selecting files automatically, which are discussed in the *Selecting Drives and Files* chapter in this part.

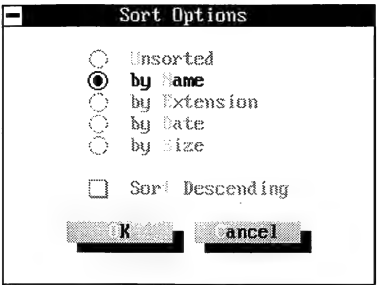
Changing the Display Options

Display Options offers two commands that affect the way your files are displayed in the tree and file list window.

Sort Options

Central Point Backup displays the files on your hard disk in their "normal" order, that is, the way they are stored on the disk. You can change this order (on your screen only) so that files appear in alphabetical order, by date, by extension, or even by size.

1. Choose **Display Options ► Sort Options** from the Options menu.



- 2. Select the sort to use:
Unsorted: No sorting at all.
by Name: Sorts by file name. This is the default setting.
by Extension: Sorts by file extension.
by Date: Sorts by date of file (newest first by default).
by Size: Sorts by size of file (largest first by default).
Sort Descending: Sorts from Z to A, oldest to newest, smallest to largest.
- 3. Choose **OK** to sort the display.

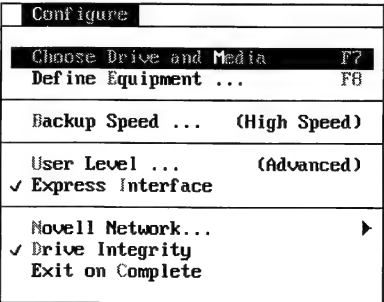
Long Format

Central Point Backup displays all file names, extensions, attributes, date, time, and size of every file in the File List by default. You can change the display to show only file names and extensions with the **Long Format** command.

- Select **Display Options ► Long Format** from the Options menu.

Configure Menu Commands

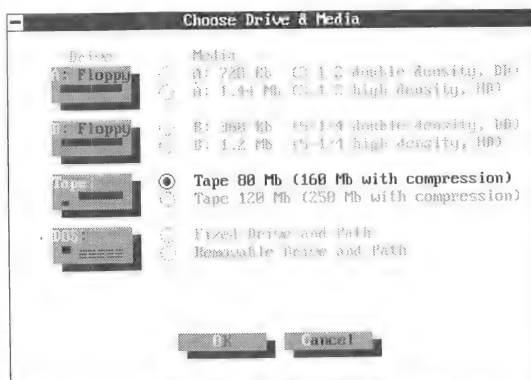
The Configure menu contains commands that control the system environment, including drives, media, backup speed, and user level.



Choose Drive and Media

Choose Drive and Media defines the size of the disk or tape you use in your drives. Make sure this is set correctly before backing up or restoring.

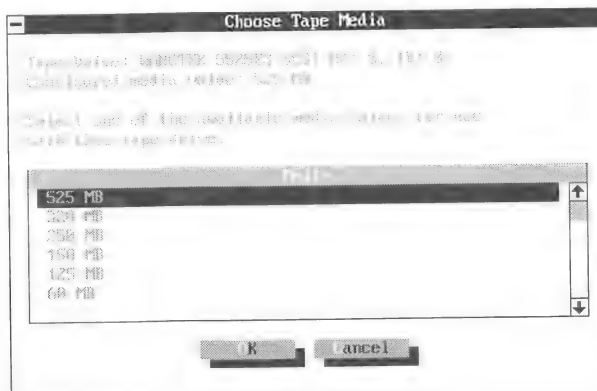
1. Select **Choose Drive and Media** from the Configure menu.
(You can alternatively use the **Backup To** drop-down list box.)



2. Select the media size to use, and choose **OK**.

NOTE If you select *Fixed or Removable drive and path*, a text box appears where you can enter a specific path.

If you are using a SCSI tape, the following dialog box appears:



- Select the media size to use, and choose **OK**.

Define Equipment

Define Equipment performs a quick hardware scan to determine the configuration of your system. Use this command only if you make changes to drives A or B or supported tape drives. (Most often you would use the Choose Drive and Media command.)

See the *Configuring Central Point Backup* chapter, in this part, for step-by-step details on what the Define Equipment command does.

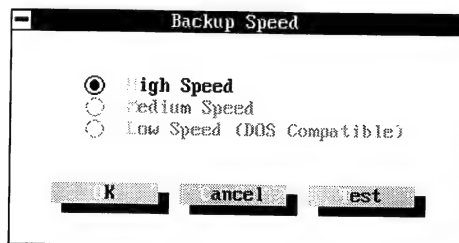
Backup Speeds

Central Point Backup defaults to the fastest possible speed for your backups. If you encounter problems with the default setting after a backup and comparison, you can change the speed and try again. If you add or remove floppy disk drives, tape drives, or hard disks, or change your hardware configuration in any way, you should retest your system. If you are unsure of the speed you should use, you can test your equipment with this command. Run a test for every media type you might use. For example, if you have a 1.2MB drive, test both 1.2MB high-capacity disks and 360K disks to be sure your system can handle the same speed for each.

Use low speed on any device except newer tape drives (those that do not have a drive letter assigned to them) and floppy drives A and B.

1. Choose **Backup Speed** from the Configure menu.

NOTE The choices you see in the dialog box may be fewer than shown below, depending on the selected media. For example, if you selected **Removable Drive and Path** as your backup destination, Low Speed is the only option that appears.



2. Select the speed you want to use, and choose **OK**.

High Speed: Uses the Direct Memory Access (DMA) controller found inside most PCs. This frees up central processing unit (CPU) time so that your computer can read from your hard disk and write to a floppy disk (or tape) simultaneously (overlapped I/O mode).

The DMA option makes your backups much faster, but only works when backing up to floppy disk drives A and B or supported tape drives.

Medium Speed: Use this option if problems were encountered using **High Speed**. It still uses the DMA controller, but in a non-overlapping mode. This means it does not read and write simultaneously. Use **Medium Speed** with both floppy and tape backups.

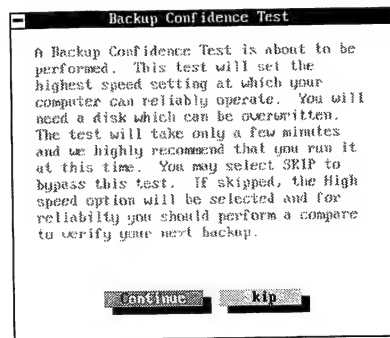
If you encounter difficulties during a high-speed backup and comparison, try another backup and comparison at **Medium Speed**.

Low Speed: Use this option to back up your files to any DOS device; that is, any device that you can access by a drive letter and copy files to. Use this option when backing up to a device with a letter other than A or B, across a network, or to a tape drive that is configured as a DOS device. Central Point Backup automatically defaults to low speed if you are backing up to a DOS device.

If you select **Low Speed**, you cannot restore these backups using high or medium speed.

Performing a Confidence Test

The following dialog box appears if you choose **Test** in the Backup Speed dialog box:



Choose **Continue** to proceed with the test, or **Skip** to quit. If you skip the confidence test, the backup speed is set to high.

WARNING Skipping the confidence test may result in unreliable backups.

If you continue, you need to have a blank or otherwise unimportant floppy disk or tape to use for the test. Be sure the disk or tape matches the media you selected in the Choose Drive and Media dialog box.

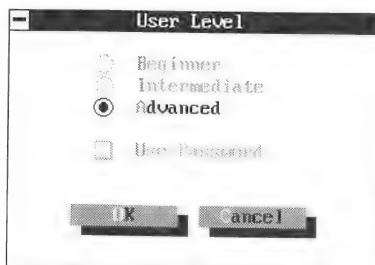
When the test is complete, a dialog box informs you of the results. Central Point Backup automatically sets the backup speed to the fastest your computer passed in the test.

WARNING You cannot use low speed to restore a backup performed at medium or high speed. These backups must be restored at high or medium speed, using floppy drives A or B. Keep this in mind if you expect to restore a backup made on one system to a different system.

User Level

Central Point Backup lets you customize your work environment by selecting a user level. The user level determines the number of commands available.

1. Choose **User Level** from the Configure menu.



2. Select the level you want.

Beginner: If you are not concerned with options you aren't familiar with, or just want to do a backup as easily as possible, use the Beginner level. Central Point Backup automatically defaults to the options that reflect the highest degree of safety, security, and ease of use for the Beginner level.

Intermediate: If you want to perform backups as quickly and easily as possible, but need additional control over file selection and backup methods, then use the Intermediate level.

Advanced: For maximum control over all aspects of your backup, use the Advanced level. If you are familiar with previous versions of Central Point Backup, use the Advanced level.

3. Select the checkbox to password-protect the user level so it cannot be changed without the proper password.

An "X" appears, indicating that password-protection is on.

4. Choose **OK** to continue or **Cancel** to retain the current user level.

The following table shows the commands available in each level:

Menu Command	Beginner	Intermediate	Advanced
<i>File menu</i>			
Load Setup	X	X	X
Save Setup		X	X
Save Setup As		X	X
Save as Default	X	X	X
Print history	X	X	X
Exit	X	X	X
<i>Action menu</i>			
Start Backup	X	X	X
Backup From	X	X	X
Select Files...		X	X
Schedule Backups		X	X
Restore	X	X	X
Compare	X	X	X
<i>Options menu</i>			
Backup Method		X	X
Reporting	X	X	X
Compress			X
Data Encryption			X
Verify			X
Media Format			X
Format Always			X
Error Correction			X
Virus Detection			X
Save History			X
Overwrite Warning		X	X
Time Display			X
Selection Options		X	X
Display Options		X	X

The Configure, Tape Tools, and Help menus remain the same for all user levels.

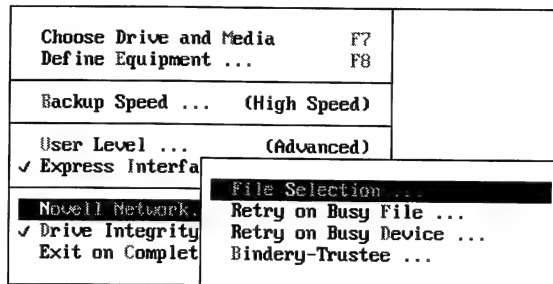
Express Interface

The directory tree always appears when you turn off the Express interface. If you prefer, you can disable Express so the tree always appears.

1. Choose **Express Interface** from the Configure menu.
2. Choose **Save as Default** from the File menu, if you would always like the directory tree to appear in future backup sessions.

Novell Network

This command displays a submenu that offers different options you can define for accessing files on a Novell network:



File Selection

If you are connected to a Novell network, you can choose how you want local and network volumes displayed in the Backup From list. The default is to display by drive letters.

Many network volumes are mapped to a drive letter that is actually a specific path on a particular volume of a particular file server. For example, if you map drive G to the directory NOVELL\SYS:ACCTS\RECEIVE, you access that directory whenever you type G: at the DOS prompt.

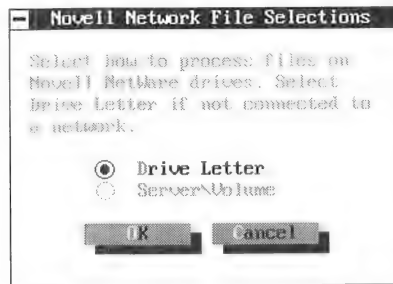
You can display server\volumes by name rather than by drive letter. If you reference network file servers by name, you avoid confusion if the network drive mappings change.

NOTE Be careful when backing up and restoring files that appear as mapped drive letters. If the mappings change after the files are backed up, the files may not be restored.

For example:

This Drive	Indicates
Drive C	Local DOS drive.
Drive G	[SYS:ACCTS\RECEIVE] Mapped drive.
NOVELL\SYS: ACCTS	Single volume on a network drive.

- Choose **Novell Network** ► **File Selection** from the Configure menu.



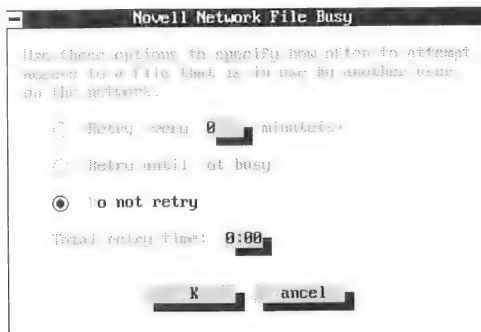
Drive Letter: Displays logical drive letters, assigned by the NetWare Map command to a network volume.

Server\Volume: Displays network drives as true network volumes, rather than logical drive letters.

Retry on Busy File

If you are attempting to back up a file that is locked or in use by someone else, you can instruct Central Point Backup to keep trying to back up the file or skip it.

- Choose **Novell Network** ► **Retry on Busy File** from the Configure menu.



Retry every *n* minutes: Specifies how often you want the busy file accessed to back it up. Type a number, up to 59.

Retry until not busy: Central Point Backup continues to access the busy file until it is no longer busy, then backs it up.

Do not retry: Central Point Backup skips the busy file.

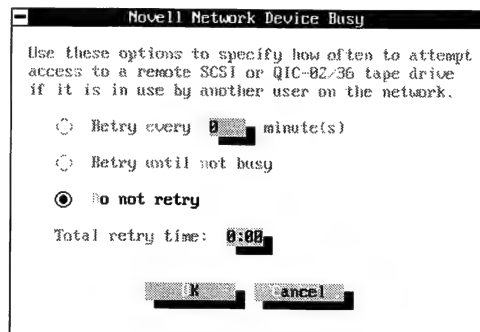
Total retry time: Specifies how long you want to continue to attempt to back up a busy file. Type the number of hours (up to 23) and the number of minutes (up to 59).

Retry on Busy Device

If you are attempting to back up, compare, or restore using a tape device on the server that is in use by someone else, you can keep trying to access the device, or quit the operation.

NOTE The server must be running the Central Point server-based software.

► Choose **Novell Network** ► **Retry on Busy Device** from the Configure menu.



Retry every *n* minutes: Specifies how often you want the busy device accessed. Type a number, up to 59.

Retry until not busy: Central Point Backup continues to access the device until it is no longer busy.

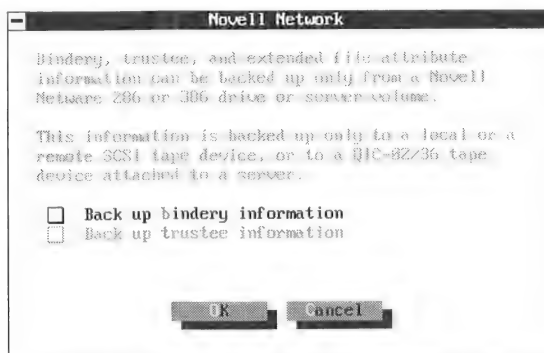
Do not retry: Central Point Backup cancels the operation if the device is in use.

Total retry time: Specifies how long you want to continue to attempt to access the device. Type the number of hours (up to 23) and the number of minutes (up to 59).

Bindery-Trustee

If you are a supervisor of a Novell network, you can back up trustee information and the bindery files with this command. (See the Novell documentation for details on the significance of these files.)

1. Choose **Novell Network ► Bindery-Trustee** from the Configure menu.



2. Select the options you want to set for this backup, and choose **OK**.

Back up bindery information: Backs up the bindery, which is the database of information of the network user lists and the groups they belong to on the network. The bindery consists of permanent, hidden system files that are always located in the SYS:SYSTEM directory. The files are NET\$BVAL.SYS and NET\$BIND.SYS for NetWare 286 networks. Under NetWare 386, the files are NET\$OBJ.SYS, NET\$PROP.SYS, and NET\$VAL.SYS.

NOTE If the SYS volume has not been logged before the backup begins, the bindery files are not backed up.

Back up trustee information: Backs up the assigned rights of every selected file.

Drive Integrity

This command is on by default, as indicated by a checkmark in the menu. When the Drive Integrity command is on, Central Point Backup scans the integrity of your disk files and reports lost clusters, cross-linked files, and FAT errors.

If problems are detected, the drive is not selected, and a dialog box appears recommending that a disk utility, such as Central Point's DiskFix, be run before proceeding.

NOTE *If you do not want to correct the problem before backing up, turn off the Drive Integrity command and select the drive again.*

Exit When Complete

This command, when on, exits Central Point Backup after a backup, compare, or restore has finished. A checkmark indicates the command is on.

Tape Tools Menu

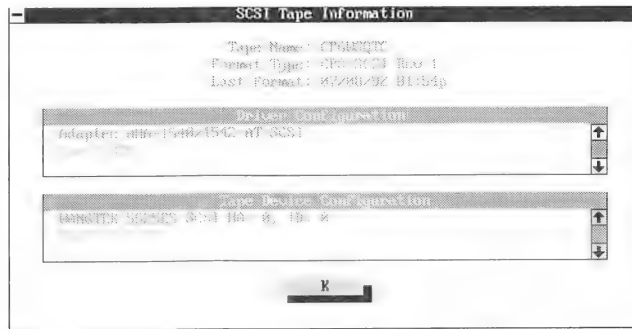
The Tape Tools menu appears only if you have configured Central Point Backup to use a tape drive. You can format, erase, and check the contents of a tape using the commands on this menu.

Directory

This command displays the names of all the backup sets contained on the inserted tape.

Information

This command displays information about the tape, such as the name of the tape, when it was formatted, how much space is free, and what program created the tape.



NOTE The tape information dialog box varies, depending on the type of tape drive you have.

Quick Erase

Performing a **Quick Erase** on a tape causes Central Point Backup to view the tape as blank. The data is not actually erased, but the volume tape catalog is erased. This process makes any data on the tape unrestoreable.

Secure Erase

Secure Erase physically deletes the data from the tape. If you have confidential information on a tape and want to dispose of it, you should use the **Secure Erase** option. This process can take several minutes to several hours, depending on the tape and its format.

Format

This command formats a tape. A progress bar displays the status of the formatting process. (The **Format** command is not needed for SCSI tapes, which is why it is not available.)

Retension

For a tape to function optimally, it needs to maintain an even tension along its length. **Retension** fast forwards, then rewinds the tape and sets the tension correctly. This process may take a few minutes, depending on the length of the tape.

Scheduling Backups

The Scheduler button and the **Schedule Backups** command use the Central Point Scheduler, which is an application that lets you schedule backups without monitoring the procedure. This is especially useful for backing up to tape drives, removable cartridges, or to a network volume.

NOTE *The Schedule Backups command is not available at the Beginner user level.*

Here's what you'll find in this chapter:

- **Scheduling Backups** explains how to use the Central Point scheduling program to specify times to back up your data automatically.
- **Unattended Backups** explains what happens during an unattended backup.

The scheduler provides a 15-second warning before it runs the scheduled backup in case you are in the middle of an application that you do not want interrupted. When the backup is complete, the scheduler returns to the application you were running.

The memory-resident program, CPSCHED, must be resident in order to launch Central Point Backup at the scheduled time. If you chose not to have CPSCHED automatically load when you installed Central Point Backup, you must load CPSCHED prior to any scheduled backups.

- ▶ To load CPSCHED, from DOS type,

CPSCHED

- ▶ To remove CPSCHED from memory, from DOS type,

KILL

or

CPSCHED /U

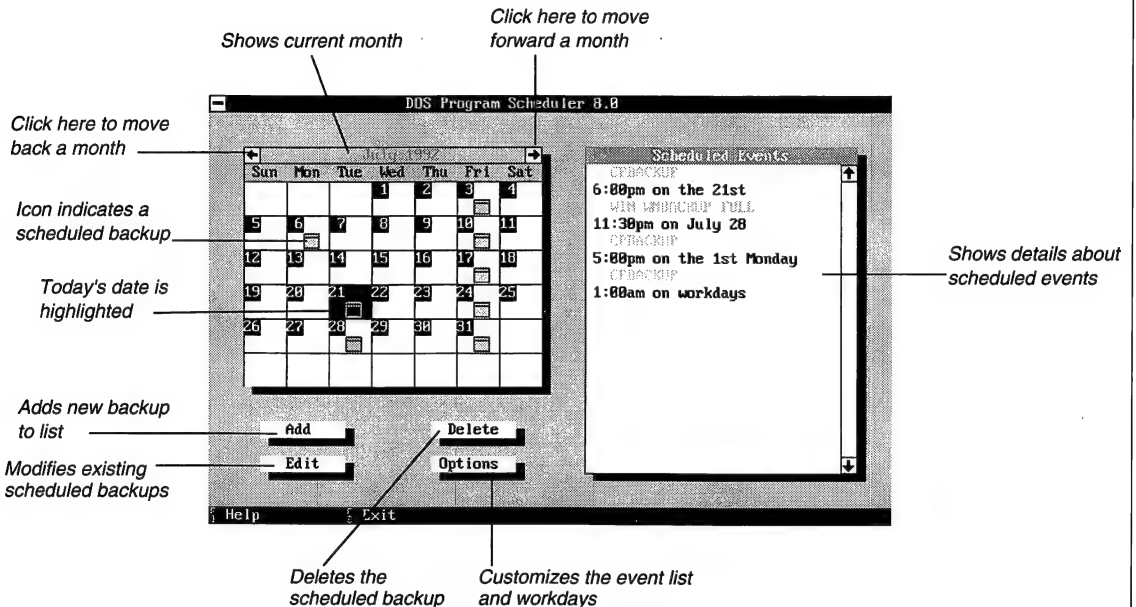
Scheduling a Backup

1. Choose the **Scheduler** button.

or

Choose **Schedule Backups** from the Action menu.

The Scheduler window appears. Icons in the calendar indicate scheduled backups.



2. Select the day on the calendar you want to schedule a backup.

3. Choose **Add**.



- If you want to change the date, type the date using the format mm/dd/yy in the Date text box.
4. Type the time you want to schedule your backup using the format hh:mm (am or pm) in the Time text box.
Do not put a space between the time and the am or pm.
5. Choose a setup file.
Select the down arrow. A drop-down list box appears, showing all the Central Point Backup setup files the scheduler found in the \DATA subdirectory.
6. Select a frequency.

Daily: Schedules the backup to occur everyday.

One Time Only: Schedules the backup to occur one time.

Workdays Only: Schedules the backup on the days you identify as workdays. You select the days of the week you want treated as workdays with the Options button on the main scheduler window. See the "Scheduler Options" later in this chapter for details.

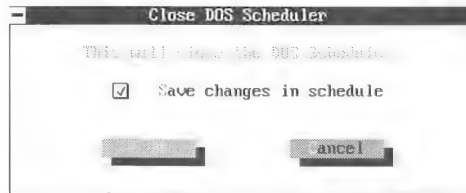
Weekly: Schedules the backup every week on the specified day.

Monthly-Fixed Day: Schedules the backup on the same date every month.

Monthly-fixed Weekday: Schedules the backup on the the same weekday every month.

Biweekly: Schedules the backup every other week.
7. Type the program name in the Event text box.
By default, CPBACKUP appears here, with the setup file you selected and any parameters (up to 64 characters).

8. Choose **OK** to save this information.
Continue until you have scheduled all the backups you want.
9. Choose **Exit** when finished.
10. Check the **Save changes in schedule** option in the Close dialog box to save your scheduling information:



All scheduled backup information is stored in the file CPBACKUP.TMM. The Central Point Windows scheduler uses this file also.

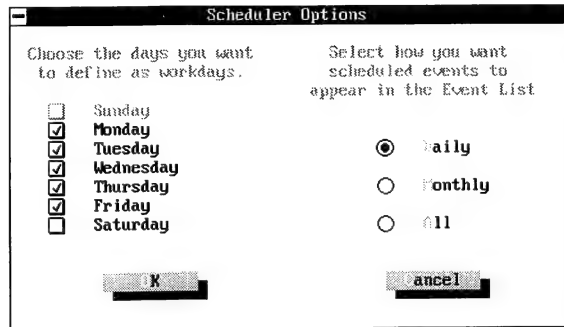
Keystrokes for Navigating the Calendar

Use This Key	To Move to
← and →	Yesterday and tomorrow
↑ and ↓	Last week and next week
Tab	Event List and Calendar
Pg Up and Pg Dn	Last month and next month
Control← and Control→	Last year and next year

Scheduler Options

The **Options** button lets you define what days you want the Scheduler to recognize as workdays, and change what to display in the Event List.

When you choose **Options**, the following dialog box appears:



Workdays: Customizes the days you would like the Scheduler to use as workdays. Click the checkbox next to each day, or press **Tab**, then **Enter**.

Event List Display: Customizes the Event List to display only a specific day's scheduled events, all scheduled events in the displayed month, or all scheduled events, regardless of the displayed month.

Unattended Backups

When you want the backup to run, be sure the computer is on, CPSCHED is loaded, and a tape is in the drive. Central Point Backup performs the backup at the specified time, and returns the machine to the state it was in prior to the backup.

NOTE If the setup file used in the scheduled backup has a description, that description also becomes the description of that backup. Otherwise, the backup has the name Unattended Backup.

If Central Point Backup is launched from a batch file, and the backup progresses without interruption, control is returned automatically to the batch file to execute the next command.

If Central Point Backup is launched from the command line with a setup file, or from the scheduler, then Express is automatically disabled to conserve memory. This means the directory tree and file list is always visible on screen.

Any automatic backup (scheduled or run from the command line) answers the default button in any dialog box that appears. At the beginning of tape backups, a dialog box appears, showing the tape contents and offers options to **Append** or **Erase** the tape. For *all* backup methods, except **Full/Erase Tape**, the default button is **Append**, which is what happens in automatic tape backups.

Comparing Data

After performing a backup, you should compare your hard disk data with the data contained on your backup media. This is an extra measure of security so that you are sure the data contained on your backup disks or tapes matches the files on your hard drive, and is restorable.

Use **Compare** whenever you make changes to your hardware configuration or backup settings, or when you use new media.

Here's what you'll find in this chapter:

- **Comparing Your Backup to the Original Data** explains how to compare the data on your backup media to the original files on the hard drive.
- **Displaying the Compared Files** explains how to see what files did not compare.
- **Missing History Files** explains how to do a comparison when the history file is missing.
- **Comparing Specific Files** explains how to select individual files to compare.
- **Searching History Files** explains how to look through history files stored on your hard drive for specific files.
- **Printing a Directory from a History File** gives step-by-step instructions on printing a backup directory.

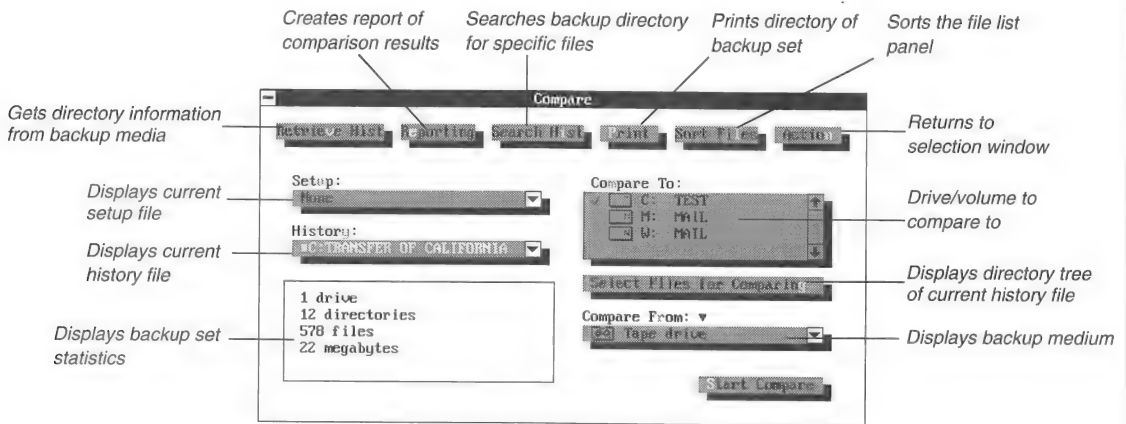
NOTE *Central Point Backup automatically skips certain files during a comparison. See the Technical Information chapter in this part for the list.*

Comparing Your Backup to the Original Data

If you used a setup file when doing the backup, use the same setup file for the comparison, so all the settings are identical. You have the opportunity to start a comparison immediately after a backup is complete.

Compare saves a report of the comparison results automatically if you have turned on the Reporting command.

1. Choose **Compare** from the main selection window.



2. Choose **History** and select the history file of the backup set containing the data you want to compare.

or

Highlight the history file you want, press **[Spacebar]** to load the history file, and press **[Enter]** to display the history tree.

or

Use the Retrieve History button if the history file you want to compare is not in the History list.

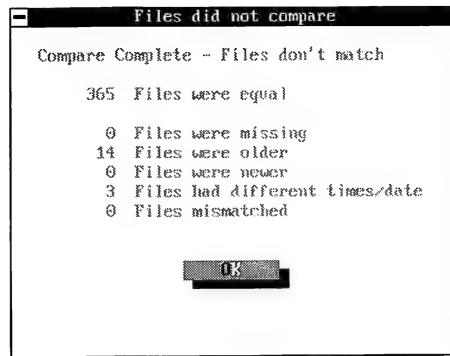
TIP Double-click a drive icon in the Compare To list to display a text box and type a specific path to compare to, or press **[Enter]**.

3. Choose **Start Compare**.

If you used a password when the backup was originally performed, you see a prompt to enter it now. Also, if you encrypted the data, you are prompted for the decryption key.

4. Insert the *first* disk or tape of your backup set. Continue to insert disks or tapes as prompted.

At the conclusion of the comparison, the results appear:



Displaying the Compared Files

If some of your files do not compare, it is easy to see which ones they are. The icons next to each mismatched file indicate why the file did not compare. (See the symbol table that follows.)

- ▶ Double-click the history file you just compared.

or

- ▶ **Tab** to the **History** list, then press **Enter**.

NOTE Windows updates certain files every time you exit from Windows. Therefore, if you back up with the Windows version of Central Point Backup, exit from Windows, and then use either version to compare the backup, some of the backed-up files from your Windows directory always miscompare with the original files on the hard disk. These files include most of the .GRP files, and some .INI files, including PROGMAN.INI.

Compare Symbols

The symbol next to each file icon indicates how that file compared with the original file:

Symbol	What it Means
=	The backup file was identical to the hard disk file.
x	The backup file did not match the hard disk file, although the date and time stamps matched.

The following symbols may appear (in addition to the above symbols) if you are doing a comparison at a time other than immediately after a backup:

Symbol	What it Means
<	The backup file did not match the hard disk file, and the date/time stamp was older.
>	The backup file did not match the hard disk file, and the date/time stamp was newer.
s	The backup file matched the hard disk file, but the date/time stamp was different.
–	The backup file was missing from the hard disk.

No symbol next to a file means that the file has not been compared, for example, if you are not comparing all files on your hard disk.

If you do a comparison immediately after a backup, and the symbol “x” appears next to any of the compared files, do not rely on the backup until you have determined the problem and corrected it. Check for one of the following conditions:

- Are there any memory-resident programs (TSRs) that could be changing files during a backup? If so, turn off the TSR and try the backup again.
- Are you using a disk-caching program that caches the floppy drives? If so, turn off the floppy drive caching, and try another backup and comparison.

If the previous questions don’t apply to your situation, then:

- Try backing up at a different speed.
- Use different media.
- Repeat the backup, if necessary, and compare again.

Missing History Files

Use the **Retrieve History** command if you do not have history files stored on your hard disk. To read the history file from the backup media, you must insert it when prompted.



History files are stored at the end of a Central Point-format tape and at the beginning of a QIC-format tape. Depending on the format you used for your tape, you are asked for either the first or last tape.

1. Choose **Retrieve History** (also available from the Action menu).

2. When prompted, insert the last disk or requested tape of the backup.
The history file is read from the backup and the history name and backup date appear in the History drop-down list.

There may be instances when the history file is not on your hard drive and the last disk of your backup set is missing or damaged. You can rebuild the history file from the remaining disks (rebuilding the history file is available for floppy disk backups only). See the section “Rebuilding History Files” in the *Restoring Data* chapter in this part for details.

Comparing Specific Files

If you want to compare a single file, you can select that file manually from the File List.

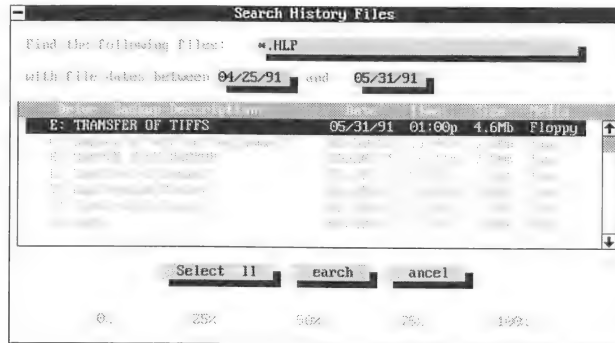
1. Select the history file from the History drop-down list that contains the file(s) you want to compare.
The information from the history file is read into memory.
2. Choose the **Select Files for Comparing** button (also available on the Action menu).
or
Double-click the name of the backup set in the History drop-down list box to display the directory tree.
3. Click the root directory to deselect all files.
4. Select the specific file(s) in the File List you want to compare, then press **F10** to dismiss the tree.
5. Choose **Start Compare**.

Searching History Files

The **Search History** command finds all occurrences of specified file characteristics in your backup sets so you can compare to the original(s) on the hard disk.

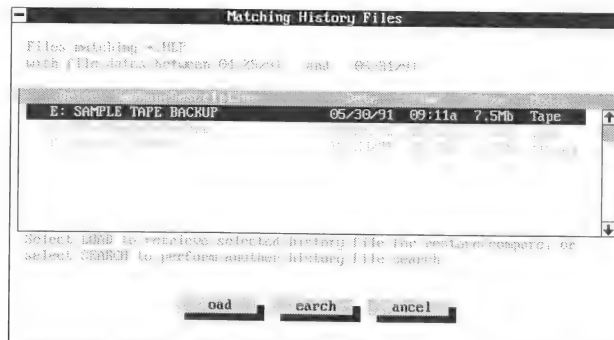
You can select specific files to compare or search for file characteristics in a backup set with the **Search History** command.

1. Choose **Search History** (also available from the Action menu).



2. Enter the file name(s) you want to search for or use DOS wildcards. Separate multiple file specifications by spaces.
3. Enter the date range you want to search for.
This date refers to the date of the *file*, not of the backup. You can skip this option if you want, and all dates are searched.
4. Select the history file(s) to search from the list.
or
Choose **Select All** to search all history files.
5. Choose **Search**.

All of the selected history files on your hard drive are searched, newest to oldest, for the specified files. The progress bar displays the status of the search on a file-by-file basis. When the search is complete, a list of all the history files containing the backed-up files that match the specifications appears:



6. Select the file(s) to compare from the list.

Be sure each file has the same backup date. If any of the files span multiple history files, you can select the specific one you want to compare by date. You can select only one history file to be loaded at a time.

or

Choose **Search** to clear your selections and start again.

7. Choose **Load**.

The history file is read and its name appears in the History drop-down list box.

8. Double-click the history file name.

The backed-up directories and files appear in the Tree and File Lists. The matching files are highlighted.

9. Press **F10** to return to the Express window and choose **Start Compare**.

Printing a Directory from a History File

Use the **Print history** command to print the directory of a backup set to a disk file or to a printer.

If you send the directory to a file, you can view the directory when the directory tree is displayed in Backup mode, or you can use the **View** command at the DOS prompt. The file is named HST.RPT and is found in the \DATA subdirectory.

1. Select the history file you want to print from the **History** list.
2. Choose **Print history**.

The directory report is sent to a text file or printer, depending on the setting of the **Reporting** command.

Restoring Data

Central Point Backup can restore an entire hard disk or specifically selected files and directories. You may restore files that were backed up on one machine to a different machine, or restore files to a previous state.

Here's what you'll find in this chapter:

- **Full Restore** explains how to restore the data from your backup media to the hard drive.
- **Restoring with Full and Partial Backups** explains how to restore all the data from your backup media to the hard drive when you have both full and incremental or differential backup sets.
- **Restoring Specific Files** explains how to select individual files to restore.
- **Searching History Files** explains how to look through history files stored on your hard drive for specific files.
- **Missing History Files** explains how to restore data when the history file is missing.
- **Rebuilding History Files** explains how to rebuild the history file from the data in your floppy disk backup set.
- **Restoring with Missing Disks** tells how to restore data when disks are missing.
- **Printing a Directory from a History File** gives step-by-step instructions on printing a backup directory.

NOTE *The Overwrite Warnings command is on by default at all user levels. However, if you turned it off during a backup, turn it on for a restore so you are notified if any files on the hard disk will be overwritten by older versions of the same files in the backup set.*

All the restore functions available in Express are also available when Express is disabled. For each command button of Express, there is a corresponding menu command on the Action menu when in Restore mode. To perform a restore or search a history file, select the appropriate command from the Action menu. To retrieve, rebuild, or print a history file, select the Choose Directories command from the Action menu.

Full Restore

If you have experienced a hard disk crash and need to reformat, you must install DOS and Central Point Backup before you can start your restore. Refer to your DOS manual to install DOS. Use the PC Tools Install program to copy Central Point Backup files from the original disks.

If you are restoring multiple drives, you must restore each drive individually. If you are restoring network volumes, see *Network Backups*.

NOTE It is important to restore your files using the same speed as the original backup. For example, if you backed up your files using low speed, you must restore your files at that speed.

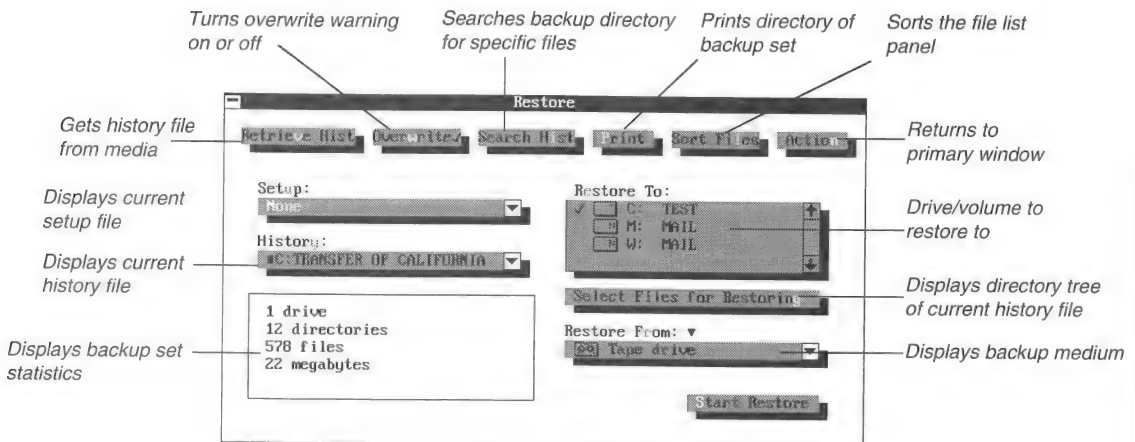
If you are accustomed to using a mouse, reinstall your mouse drivers before running Central Point Backup.

1. From DOS, type

CPBACKUP

Since this is the first time you are using Central Point Backup after installing it on your hard disk, you must configure it again. See the *Configuring Central Point Backup* chapter.

2. Choose **Restore** after configuration.



3. Choose **Retrieve History**.

or

If Express is disabled, select **Choose Directories** from the Action menu.

4. When prompted, insert the last disk or the requested tape of the backup set.

The history file is read from the backup and the history name and backup date appear in the History drop-down list.

TIP To select the restore destination, double-click a drive icon in the Restore to list box to display a text box. Then, type a specific path to restore to, or press **Enter**.

5. Choose **Start Restore**.

If you are restoring a network backup that contains trustee information or the bindery, you are asked if you want to restore this information. You must have the proper network privileges to restore each; otherwise, the information is *not* restored. See *Network Backups* for details.

6. When prompted, insert the *first* disk or tape of your backup set.

The progress of the restore process appears on the screen.

7. Continue to insert disks or tapes until the restore is complete.

NOTE It is normal for the drive light to stay on continuously while restoring at high and medium speed. You will not damage your disks by inserting or removing them when you are prompted to do so, even when the drive light is on.

Overwrite Warning

If Overwrite Warnings is on, a dialog appears when the directory containing your newly restored Central Point Backup files is detected. Choose Skip this file and Repeat for all Later Files to avoid overwriting the files.

Be especially careful if you are restoring a backup that may contain an older version of DOS than what is currently on your hard drive.

If you are restoring a directory with attributes that are different than the existing directory, an overwrite warning appears.

Restoring with Full and Partial Backups

The process of restoring a hard drive from a full backup, coupled with its subsequent partial backups (differential or separate incremental), is straightforward and easy to do.

NOTE If your backup method is incremental, you only need to do a single restore, since all incremental backups are appended automatically to the parent full backup, and only the most current files are selected to restore.

You can restore your full backup set first, and then each separate incremental backup. Turn on Overwrite Warning to be notified when there are duplicate files. (See the section "Overwrite Warning" in the *Selecting Backup Options* chapter in this part for details on using this command.)

If you use the differential backup method, restore the last differential backup first, and then the full backup. If Overwrite Warning is on, you can speed the restore process by having the Overwrite with Newer File Only option on. This way, the files are copied only once.

The following procedure assumes you are restoring a “crashed” hard drive.

Performing the Restore

You must install DOS and Central Point Backup before you can start restoring. Refer to your DOS manual to install DOS. Use the installation program to copy Central Point Backup files from the original disks.

1. Follow steps 1 through 7 of the “Full Restore” section, earlier in this chapter.
2. Choose **Retrieve History**.
3. When prompted, insert the last disk or requested tape of the incremental or differential backup set.

The history file is read from the backup and saved on your hard disk.

4. Choose **Start Restore** and insert the disks or tapes from the set as prompted.

If Overwrite Warning is on, the older versions of the files just restored from the full backup are detected and you are prompted for instructions. By selecting Overwrite with Newer File Only and Repeat for All Later Files, Central Point Backup overwrites all the old files with the latest version contained in the partial backup.

If you are restoring a directory whose attributes are different than the existing directory, an overwrite warning appears.

5. Repeat steps 2-4 until each separate incremental backup is restored.

Your hard disk is now in the same condition it was in after the last partial backup.

Restoring Specific Files

Often, a full restore of a hard disk is not necessary. A certain file may get deleted or changed, or a directory or file may be inadvertently wiped out. In those cases, partial restoring of just the lost data is all that is required.

1. Select the history file from the History drop-down list that contains the file(s) you want to restore.

NOTE If the history file doesn't appear in the drop-down list box, use *Retrieve History* to read it from the backup media.

2. Choose the **Select Files for Restoring** button (also available from the Action menu).

or

Double-click the name of the backup set in the History drop-down list box to display the directory tree of backed-up files.

3. Click the root directory to deselect all files. (You can also press **Enter** when the root directory is highlighted.)
4. Select the specific file(s) you want to restore, and press **F10** to dismiss the tree.
5. Choose **Start Restore**.

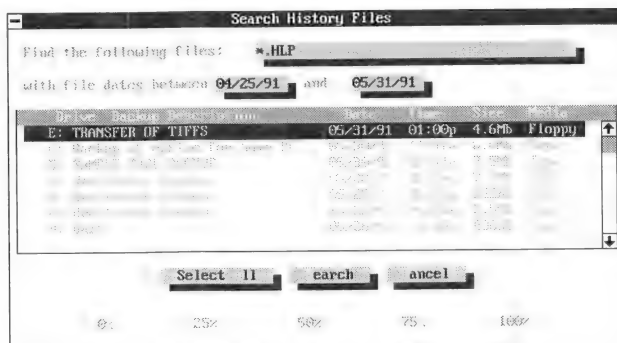
Searching History Files

Search History finds all occurrences of specific file characteristics in your backup sets so you can restore the version you want to the hard disk.

You can select specific files to restore, or search for file characteristics in a backup set with the **Search History** command.

NOTE If you do not have history files on your hard disk, you cannot use the *Search History* command. You can use the *Retrieve History* command to read the history file from the backup media, which is then automatically saved to your hard disk.

1. Choose **Search History** (also available from the Action menu).



2. Enter the file name(s) you want to search for or use DOS wildcards. Separate multiple file specifications by spaces.

3. Enter the date range you want to search for.

This date refers to the date of the *file*, not of the backup. You can skip this option if you want, and all dates are searched.

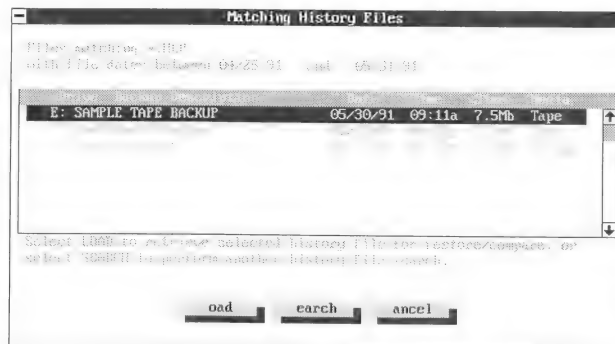
4. Select the history file(s) to search from the list.

or

Choose **Select All** to search all history files.

5. Choose **Search**.

All of the selected history files on your hard drive are searched, newest to oldest, for the specified files. The progress bar displays the status of the search on a file-by-file basis. When the search is complete, a list of all the history files containing the backed-up files that match the specifications appears:



6. Select the file(s) to restore from the list. Be sure each file has the same backup date. If any of the files span multiple history files, you can select the specific one you want to restore by date. You can select only one history file to be loaded at a time.

or

Choose **Search** to clear your selections and start again.

7. Choose **Load**.

The history file is read and its name appears in the History drop-down list box.

8. Double-click the history file name.

The backed-up directories and files appear in the Tree and File Lists. The matching files are highlighted.

9. Press **[F10]** to return to the Express window and choose **Start Restore**.

Missing History Files

Use **Retrieve History** if you do not have history files stored on your hard disk. To read the history file from the backup media, you must insert it when prompted.



History files are stored at the end of a Central Point-format tape and at the beginning of a QIC-format tape. Depending on the format you used for your tape, insert either the first or last tape.

1. Choose **Retrieve History**.
2. When prompted, insert the last disk or requested tape of the backup.
The history file is read from the backup, and the history name and backup date appear in the **History** drop-down list.

Rebuilding History Files

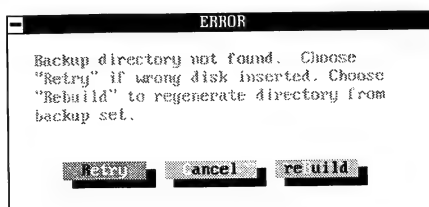
If you have lost or damaged the history file disk (the last disk) of your backup set and the history file is not stored on your hard drive, you can recreate the directory information contained in the missing history file from the remaining disks.

You can rebuild any disk or subset of a backup set and rebuild a specific disk (in case you want to restore a single file from it). A tape directory cannot be rebuilt, regardless of its formatting method.

WARNING If you lose your last Central Point-formatted tape of a multiple-tape set, and there is no history file on the hard disk, you can no longer restore your data. If you use QIC format and lose the first tape of a multiple-tape set, you can no longer restore your data. Low-speed backup sets can only be rebuilt up to the first missing disk. You cannot rebuild the directory of an encrypted floppy disk backup set.

1. Choose **Retrieve History**.

When prompted to insert the directory disk, insert the first disk of the set you do have.



2. Choose **Rebuild**.
3. Continue to insert disks as prompted.
4. Select **Done** when all of your disks have been read.
You can then save the newly rebuilt directory to a disk (not one of your backup disks).
5. Choose **Save** to permanently save the directory to disk or **Continue** to store the directory temporarily in the computer's memory.
(When you choose **Save**, the disk in the drive is overwritten. Be sure it is not one of your backup disks.)
Now that the history file has been rebuilt, you can proceed.

Restoring with Missing Disks

If you have lost or damaged disks other than the history file disk, you can restore from the remaining disks. However, if a file spans more than one disk and one of the disks is lost, you cannot restore that file.

1. Choose **Restore**.
2. Select **History** and select the history file of the backup set you want to restore.
3. Choose **Start Restore**.
4. Insert disks as prompted.
When you are prompted to insert the missing disk, insert the next disk you do have. If a file is partially restored from the previous disk, a dialog box appears, informing you that the file is missing from the inserted disk and has been deleted from the hard disk.
5. Choose **OK** to continue with the remainder of the disks.

Printing a Directory from a History File

Use the **Print History** command to print the directory of a backup set to a disk file or to a printer.

If you send the directory to a file, you can view the directory when the File List is displayed in Backup mode, or you can use the **View** command at the DOS prompt. The file is named HST.RPT and is found in the \DATA subdirectory.

1. Select the history file you want to print from the **History** list.
2. Choose **Print History**.

Backup Command-Line Options

As you become more familiar with Central Point Backup and its power and flexibility, you can specify parameters (also called switches) from the DOS command line as shortcuts to accomplish different objectives. You can add the following optional parameters at the DOS prompt:

```
CPBACKUP [d:] [setup file name] [<filespec>]
        [/DATE=mmdyy-mmdyy] [/DRIVE=X[:xx]]
        [/EXATTR=srh] [/ADDR=xxx-i-d] [/RATE=x]
        [/FULL|/COPY|/FULLERASE|/INC|/SEP|/DIF]
        [/BW] [/LCD] [/LE] [/HRESET] [/NF] [/NGM] [/IM]
        [/ECC|/NOECC] [/SF|/NONSF] [ST] [NONST]
        [/SAVE|/NOSAVE] [/?] [/NO] [/DOB] [/MTASK] [/R]
        [/R setup file name] [/R <filespec>]
```

NOTE You may use as many parameters as you need; however, combinations that affect the same option (such as /FULL and /SEP) are not allowed together. If two mutually exclusive options are specified, the last one on the command line takes effect and the first is ignored.

Do not type the brackets, since they are not part of the parameter. Leave a space between each specified option.

Option	Description
d	Specifies a startup drive to back up or restore to. This overrides whatever drive is specified in the CPBACKUP.CFG file and the setup file. To specify drive E, type CPBACKUP E at the DOS prompt.
<setup file name>	Loads the specified setup file. When Central Point Backup is launched with a setup file, Express is disabled, which means the directory tree and file list are always visible. To start Central Point Backup with the DAILY setup file, type CPBACKUP DAILY at the DOS prompt.
<filespec>	Accepts any valid DOS filespec, including paths and wildcards. For example, to back up all *.DAT files in your \WORK directory, type CPBACKUP \WORK*.DAT at the DOS prompt. You can also add file specifications to a specified setup file at the command line — CPBACKUP DAILY *.DBF *.WKS — which adds all *.DBF and *.WKS files to those already specified in the DAILY setup file.

Continued

Option	Description
/DATE=mmddyy-mmddyy	Backs up or restores all files with file dates between the ranges specified.
/DRIVE=X/xx/	Specifies the drive and media to back up to. For example, CPBACKUP /DRIVE=TAPE specifies a tape drive and CPBACKUP /DRIVE=B:720 means use drive B with 720K floppy disks. X=drive letter A or B, or the word TAPE. xx=360,720,1200, or 1400 to represent (respectively) 360K, 720K, 1.2MB, and 1.44MB disks.
/EXATTR=SHR	Excludes system, hidden, and read-only files from being backed up. You can use any combination of these at the command line. Notice there is no space between each specified attribute letter.
/ADDR=xxx-i-d	Specifies the correct I/O address for certain tape controller cards. xxx=address of the card in hex; i=the interrupt channel (IRQ); and d=the DMA channel.
/RATE=x	Sets the rate for specific tape controller cards that can support data transfer rates up to 1,000 kilobits per second (Kbps). /RATE=1 specifies a data transfer rate of 1000Kbps. The x can also be 5 for 500Kbps or 2 for 250Kbps.
/FULL	Default setting for Central Point Backup that specifies a full backup. If you are using tape for your backups, this option is the same as the Full/Append to Tape backup method.
/COPY	Specifies a full-copy backup method.
/FULLERASE	Specifies a full backup to tape by erasing the tape first.
/INC	Specifies an incremental backup method.
/SEP	Specifies a separate incremental backup method.
/DIF	Specifies a differential backup method.
/BW	Starts the program in black and white. Use if you have a color card with a monochrome monitor.
/LCD	Use if you have an LCD display. Sometimes running Central Point Backup with this option may improve the highlighting on selected items on a monochrome system. Try the /BW parameter first, then /LCD to compare.
/LE	Exchanges the functions of the left and right mouse buttons. This is generally for left-handed people.
/HRESET	Resets the mouse which may help if your mouse "disappears" on PS/2s and some compatibles.

Continued

Option	Description
/NF	Disables the special fonts Central Point Backup uses to display text-based graphic images.
/NGM	Turns off graphics mouse mode, but does not disable your mouse.
/IM	Turns off, or "ignores," the mouse.
/ECC	Turns on error correction protocol.
/NOECC	Turns off error correction protocol.
/SF	Formats floppy disks with DOS format.
/NONSF	Formats floppy disks with Central Point format.
/ST	Formats tapes with QIC format.
/NONST	Formats tapes with Central Point format for tapes.
/SAVE	Writes the history file to the hard disk and to the backup media.
/NOSAVE	Writes the history file to the backup media only.
/?	Displays a list of the parameters recognized by the program.
/NO	Turns off the use of simultaneous hard disk and floppy disk DMA. The parameter means no overlap. Use this option only if your computer "locks up," if files don't compare after a backup, or if you see a "General Hardware Failure" error message. You can also set this option by selecting Medium Speed from the Backup Speed command on the Configure menu. This is not a low-speed backup.
/DOB	Turns on the Deluxe Option Board for backing up in high or medium speed to unformatted disks for an increase in speed. The Deluxe Option Board cannot speed tape formatting. This option works only if you have a Deluxe Option Board installed. (The Deluxe Option Board is not available outside the United States.)
/MTASK	Use if you are backing up a drive where files may change during the backup (generally only needed in a multitasking environment such as DESQview or PC Tools Task Switcher).

Continued

Option	Description
/R	Starts Central Point Backup in restore mode and immediately prompts you to insert the last disk (or tape) of the backup set you want to restore. The directory is read and the restore automatically begins, using the specifications in the .CFG file.
/R <i>setup file name</i>	Starts Central Point Backup in restore mode and loads the settings that are saved in the specified setup file. This includes information such as the current drive and all files listed in the Include/Exclude Files dialog. You must specify this parameter before any others, to be effective.
/R <filespec>	The <filespec> parameter with /R restores specific files. You are prompted to insert the media containing the directory of the backup set, then prompted to insert the disk or tape containing the files matching your file specifications. For example, CPBACKUP /R *.WKS restores only your Lotus 1-2-3 data files.

Running Central Point Backup from a Batch File

You can select your backup options and then save them so they can be run from a batch file. Or, you can create a batch file using the command-line options, described earlier, to run the program.

Use Save Setup as described in the chapter *Selecting Drives and Files* in this part to save the settings you want to use for a specific backup with a specific name.

For example, you can use the preconfigured setup file SPREAD to back up all of your Lotus 1-2-3 files.

- Create a batch file with the following line:

```
CPBACKUP SPREAD
```

This command launches Central Point Backup, loads in all the settings as saved in SPREAD, and backs up all your Lotus files. When the backup is complete, the program returns to the next command in the batch file.

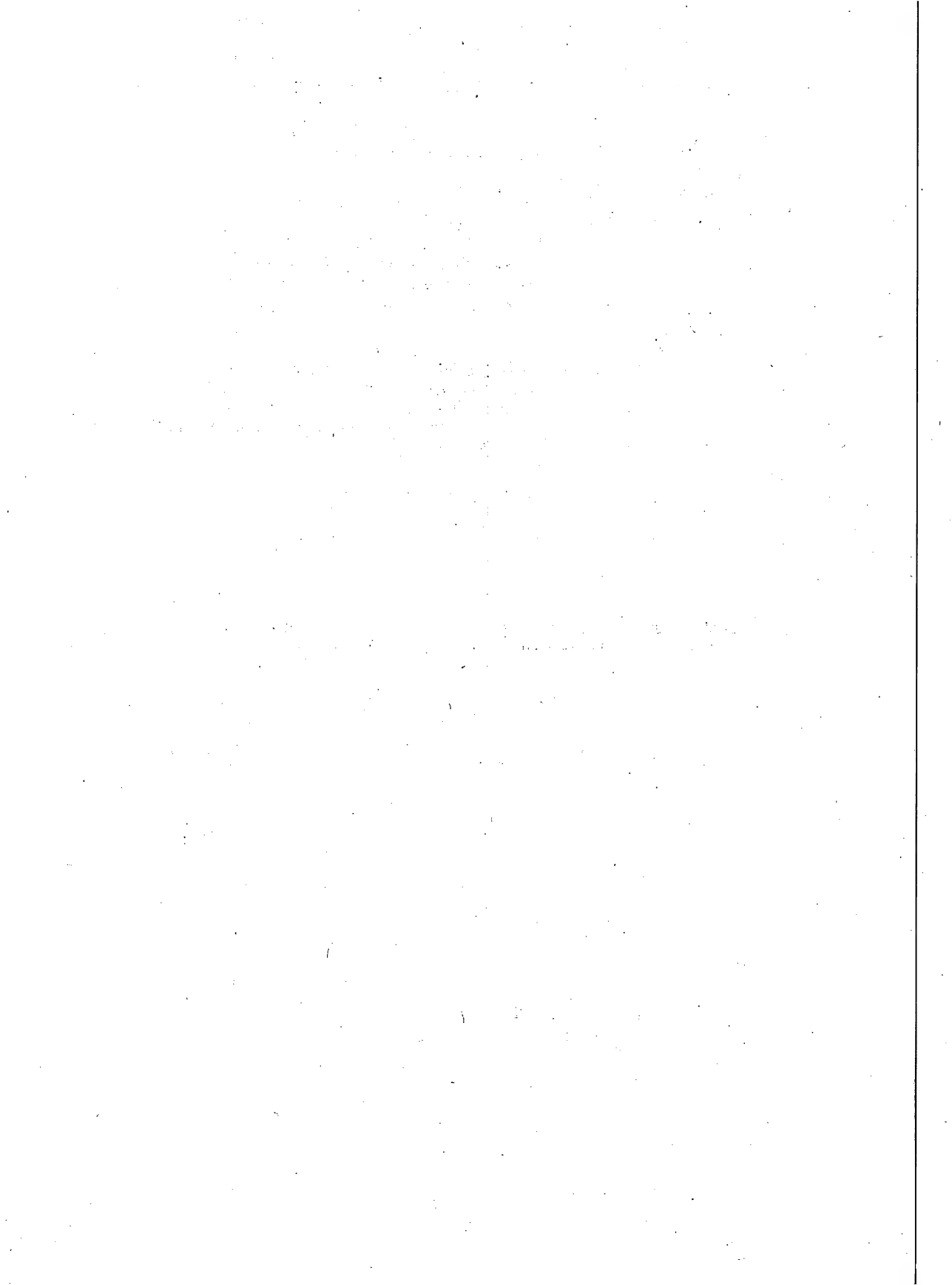
When Central Point Backup is launched with a setup file from a batch file, Express is disabled. This means the directory tree and file list is always visible.

Another example of using command-line options is to add the following line to a batch file:

```
CPBACKUP /BW /NO /FULL /RATE=1
```

This command runs Central Point Backup in black-and-white mode at medium speed, backs up all directories and files, and sets the tape controller card at 1,000 Kbps. When the backup is complete, the next command in the batch file appears.

NOTE *If Central Point Backup is launched from a batch file, and the backup is completed without interruption, control is automatically returned to the batch file to execute the next command. Otherwise, if the backup process is interrupted (such as responding to a dialog box or inadvertently pressing keys) control cannot be returned to the batch file until you exit from the program.*



Network Backups

Central Point Backup can back up data to a network directory or to a SCSI or QIC-02/36 tape device attached to the server. You can display server\volumes by name or as drive letters mapped to specific paths.

As a network supervisor, you can back up and restore the bindery, trustee rights, and extended file attributes of network data.

Here's what you'll find in this chapter:

Configuring to Use a File Server Tape Device explains how to configure Central Point Backup at a workstation to access a tape device attached to a network server.

File Server Backup Strategy offers suggestions on implementing file server backup procedures for both 286- and 386-based file servers.

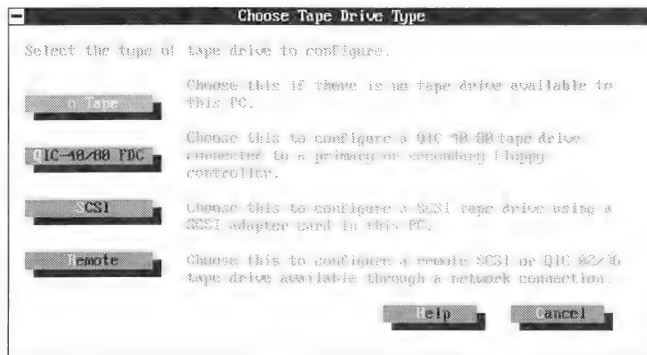
Backing Up a File Server explains how to back up bindery files, trustee rights, and extended file attributes. This section also provides step-by-step guidelines for restoring 286- or 386-based servers.

Restoring a File Server explains the procedure for restoring a 286- and 386-based file server. This section also explains how to restore the bindery and trustee rights to a 286- or 386-based Novell NetWare server.

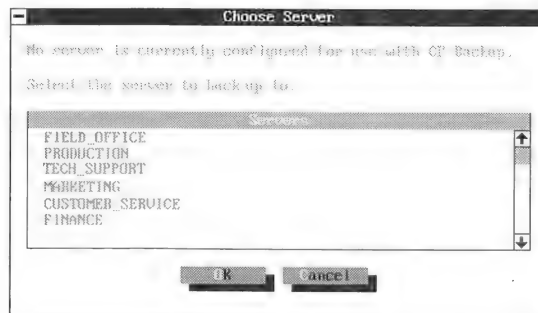
Backing Up Workstation Data explains how network users can back up workstation data to a specific directory on a network, or to a server tape device.

Configuring to Use a File Server Tape Device

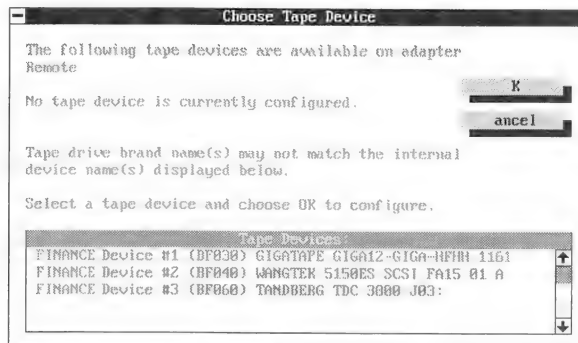
If your PC is on a network that is running the Central Point server-based software, you can back up to a tape drive that is connected to the network server. If you are running Central Point Backup for the first time, the following dialog box appears automatically. If you have already configured the program for use with another device, select **Define Equipment** from the Configure menu to display this dialog box:



1. Choose **Remote**.



2. Choose the server you want to access from the list and choose **OK**.
Only the servers that are actually running the Central Point server-based software appear in this box. Also, the list of servers may change, based upon the availability of the servers.



3. Choose the tape device you want to use.
You can select only one device from the list.

4. Choose **OK**.

A dialog box asks you to remove the tape from the drive. In many cases, this is impossible to do because your server may be inaccessible to you, or the tape may be in use by someone else. In any case, choose **OK** to continue.

5. Select **Save as Default** from the File menu to save the configuration information.

File Server Backup Strategy

This section details using the Central Point server-based software to back up a network file server, including the bindery, trustee rights, and extended file attributes of network data. You must be a supervisor, or the true equivalent, to use these features.

A good network backup strategy involves not only backing up data, but planning for and preventing disaster from striking your network. In the event a disaster does occur, having a solid plan for restoring the network files and getting back to normal as quickly as possible is imperative. Some of the precautions you can take now to help avert a downed server are:

- Ensure the electrical supply to your server is adequate, reliable, and uses an uninterrupted power supply (UPS).
- Hard drives do not last forever, especially those used in a server. If you begin to notice system error messages, hear an odd noise coming from the drive, or get excessive read/write errors, back up the drive immediately, and run diagnostics on it.
- Keep track of the data that's kept on the network. Save yourself backup time by eliminating redundant, obsolete, or unused files. Encourage the users on your network to pare down the number of files they copy to it.
- Establish a regular backup schedule and stick to it.

Novell 3.11 File Server Preparation

It is a good idea to take some precautions before a disaster strikes your network:

- Print and save a copy of the server profile information such as the server name, IPX number, volume names and sizes.

- ▶ Prepare an emergency floppy disk with the following files for each NetWare 3.11 server on the network: SERVER.EXE, LOGIN.EXE, STARTUP.NCF, AUTOEXEC.NCF, INSTALL.NLM, CPBACKUP.NLM, the driver for the network interface card, the driver for the host adapter card, and the driver for the server's startup hard disk (ISADISK.DSK, for example).

Store this floppy disk and the printed information together in a safe place, preferably off site.

Novell 2.15c File Server Preparation

It is a good idea to take some precautions before a disaster strikes your network:

- ▶ Print and save a copy of the server profile information such as the server name, IPX number, volume names, and sizes.

Store the printed information in a safe place, preferably off site.

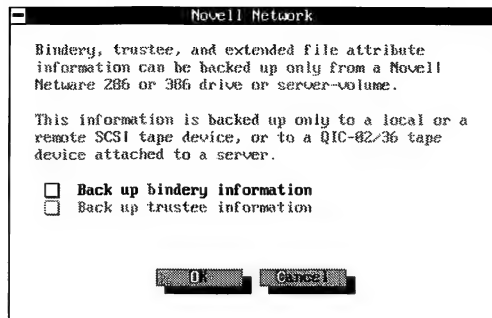
Backing Up a File Server

1. Configure Central Point Backup to use the Remote option.
See the previous section "Configuring to Use a File Server Tape Device" for step-by-step instructions.
2. Choose the way you want to display the network volumes: as server\volume names or mapped drive letters, using the **Novell Network ▶ File Selection** command from the Configure menu.
3. Select the data to back up.

TIP Use the backup password feature on each network backup set as an additional measure of security.

Backing Up Bindery-Trustee Information

Central Point Backup automatically backs up trustee rights and the bindery files if these options are checked with the **Novell Network ▶ Bindery-Trustee** command from the Configure menu:



Back up bindery information: Check this to back up the database of information on the user lists of the network and the groups they belong to on the network. The bindery consists of permanent, hidden, system files that are always located in the SYS:SYSTEM directory. The files are NET\$BVAL.SYS and NET\$BIND.SYS for NetWare 286 networks. Under NetWare 386, the files are NET\$OBJ.SYS, NET\$PROP.SYS, and NET\$VAL.SYS.

If you have already logged the SYS:SYSTEM volume, the bindery files are selected immediately when you check this box and choose OK.

NOTE If the SYS volume has not been logged before the backup begins, the bindery files are not backed up.

Back up trustee information: Check this to back up the assigned rights of every file in the backup set.

These options are available only if you are backing up to a supported tape device on the server or to a SCSI device connected to the workstation you are using. You must be logged in as a supervisor or the equivalent to successfully back up or restore network security data such as the bindery and trustee files.

TIP Issue the NetWare CASTOFF/ALL command before the backup starts so it is not interrupted.

Restoring a File Server

This section details using Central Point Backup to restore a network file server, including the bindery, trustee rights, and extended file attributes of network data. You must be a supervisor, or the true equivalent, to restore these items.

Restoring a Novell 2.15c File Server

NetWare 2.15c uses NET\$OS.EXE as the executable server file, which is required to rebuild and restart the server. The following steps assume this file has been generated and is available to the NetWare install process.

1. Follow the steps in the Novell documentation for configuring and starting the NetWare 2.15c server.

These steps include such tasks as creating the NetWare partitions and volumes, making the SYS: volume bootable (if applicable to your situation), and loading the SYSTEM and PUBLIC files, including NET\$OS.EXE.

2. From any workstation, log on as SUPERVISOR, and load the Central Point VAP.
3. Restart the server.
4. From any workstation, run Central Point Backup, and continue restoring.

Restoring a Novell 3.11 File Server

This procedure refers to a server configured with a DOS boot partition.

1. Reformat or replace the damaged file server hard drive.
2. Create a bootable DOS partition.
3. Create the SERVER subdirectory.
4. Copy the contents of the emergency floppy disk outlined previously into the SERVER subdirectory.
5. Execute SERVER.EXE to start the server.

Use the printed profile for the correct information to enter when prompted. The NetWare prompt (:) should appear.

6. Load the hard disk driver(s).
7. Load the Novell INSTALL.NLM.
8. Recreate the partitions, one per disk, using the printed profile as a guide.
9. Recreate the volumes, starting with SYS.

You may have more than one volume per partition, or a volume can span multiple partitions.

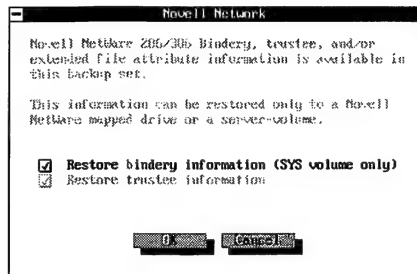
10. Mount the volumes.
11. Load the network interface card driver and bind IPX to that card.
12. Load the CPBACKUP.NLM from the console prompt.
13. From any workstation, log on to the server as SUPERVISOR, run Central Point Backup, and proceed with the restore.

Restoring Bindery/Trustee Information

You can restore the bindery files and the trustee information for network files if you are a network supervisor.

NOTE You must restore the bindery to the SYS volume of the server, since the bindery exists only on the SYS volume.

Once the restore process begins, the catalog file of the backup set is opened and checked for bindery and trustee information. A dialog box appears, prompting for confirmation of these files:



If the bindery is not being restored to the SYS volume, the option to restore the bindery is unavailable in the dialog box.

If you attempt to restore bindery information, without having supervisory rights, error messages occur, and the bindery is not restored.

If you are restoring files, including the bindery files, but not trustee information, the bindery files are restored first, and then the remaining files are restored.

If you restore to a Novell NetWare 286-based server, another dialog appears informing you that two restores are necessary if you are restoring bindery and trustee files. The first process restores only the bindery files. You must then restart the server and run a second restore to finish restoring the remaining files and trustee information.

Backing Up Workstation Data

This section explains how a workstation user can back up the data on his or her local hard drive to a directory on the network, or to a tape device connected to the server.

Backing Up to a File Server Tape Device

The following procedure assumes you have already configured to back up to a remote device. If you have not done so, see "Configuring to Use a File Server Tape Device" at the beginning of this chapter.

1. Select the files to back up, and set any other options you want. See the *Selecting Backup Options* chapter earlier in this part for details.
2. Select **Save Setup** to save your settings and file selections for future use.
3. Choose **Start Backup**.

If you select **Full Backup/Erase Tape**, enter the password for the tape.

This is a safety measure so no one else's data is erased. The same message appears if you try to erase the tape using the commands on the Tape Tools menu.

If Central Point Backup determines the tape is empty, you are still prompted for a password, but then you become the "owner" of that tape. You can erase that tape because you know the password. Others can only append to the tape.

Backing Up to a Network Directory

You can back up the data from your workstation to a specific network directory. Each user must back up to a unique path, otherwise each subsequent backup overwrites the previous backup.

The best way to back up your data is as follows:

1. Create a subdirectory named FULL on the network and do a full backup, either weekly or monthly, to that directory.

This subdirectory should be a subdirectory of your \HOME directory.

2. Create two subdirectories named DAILY1 and DAILY2 on the same volume.

Alternate daily differential or separate incremental backups to the two DAILY directories.

By creating the three directories, you avoid the problem of overwriting the three files that Central Point Backup writes that contain your data and information about the backup. These three files are:

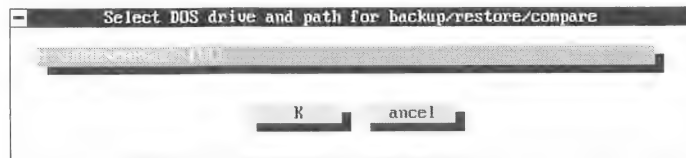
- CPBACKUP.001, which contains your backed-up data.
- CPBACKUP.DIR, which contains the directory of the backed up data.
- CPBACKUP.INF, which contains boot record information.

NOTE Normal network security is in effect during a backup. This means each user must have rights to read from and write to the drive and directory specified.

3. Select the data you want to back up.
4. Click the **Backup To** drop-down list and choose **Fixed Drive**.

or

Select **Choose Drive and Media** from the Configure menu and choose Fixed Drive and Path.



5. Enter the path as a destination, and choose **OK**.

To enter a server\volume name, turn on the Server\Volume option in the File Selection dialog box, which is under the **Novell Network** command from the Configure menu.

6. Choose **Save Setup** to save the settings for future use.
7. Select **Start Backup**.

TIP You can use the Scheduler command to schedule a backup of your data to the network after you go home for the day. See the Scheduling Backups chapter.

Tape Drive Information

Central Point Backup supports a variety of tape drives, ranging from those that connect to a floppy controller card to multiple-gigabyte SCSI drives. The most common type of tape drive for single-user PCs is the minicartridge drive, which encompasses the QIC standard as well as proprietary formats. Minicartridges are quarter-inch tapes, generally known as DC-2000, and can hold up to 250 megabytes of compressed data.

Many drives that are sold as 120MB or 250MB capacity actually are referring to the capacity of the tape when data compression is used. How much the data is compressed depends a great deal on the data itself.

Here's what you'll find in this chapter:

- **Floppy or Secondary Controller Card and QIC Drives** lists these types of tape drives supported by Central Point Backup.
- **SCSI Tape Drives** lists the SCSI devices supported by Central Point Backup.
- **Tape Formatting** explains what it means to format a non-SCSI tape and displays a table of average formatting times.
- **QIC-Format and Central Point Format** explains the differences in these two types of tape formatting.
- **Tape Controller Card Technical Information** lists the supported tape controller cards and their factory-set values.
- **SCSI Host Adapter Cards** lists the Adaptec cards supported by Central Point Backup and explains the significance of the volume tape catalog file.

Floppy or Secondary Controller Card and QIC Drives

Central Point Backup is compatible with the following tape drives:

Aiwa 80MB	ArchiveXL 80 Model 5580 Internal
Alloy 120	Archive 5540 (1991 model)
Alloy Retriever 40/60	Backtrax 80MB
Alloy Retriever 60e	CMS Tape 40/INT
Alloy Retriever 125c	CMS T2120AT
Alloy Retriever 250c	Colorado DJ-10 (Jumbo 120)
ArchiveXL 5580e External	Colorado DJ-20 (Jumbo 250)

Colorado KE-10 External 40MB	Mountain Filesafe TD-4000
Colorado KE-15 External 40MB	Mountain Filesafe TD-8000
Colorado KE-15 External 80MB	Mountain 4400
Compaq Internal 40MB Tape	Procomm 80MB
Compaq Internal 80MB Tape	Summit Express SE 120
IBM PS/2 Internal Tape 80MB	Summit Express SE 250
Identity 120	Tallgrass FS120
Identity 120e	Tallgrass FS300
Identity 80i	Tallgrass TG1140
Iomega Tape 250MB	Tallgrass Filesafe Series 80
Irwin DC 2000 Series: Model 2040 (40 MB)	Tecmar MiniVault 120i Tecmar MiniVault 120e
Irwin DC 2000 Series: Model 2080 (80 MB)	Tecmar MiniVault 250i Tecmar MiniVault 250e
Irwin 445 (external 40MB)	Tecmar QT-40e
Irwin 485 (external 80 MB)	Tecmar QT-40i
Irwin 745 (external 40MB)	Tecmar QT-80e
Irwin 785 (external 80MB)	Tecmar QT-80
Irwin Accutrac A120	Wangtek 3040
Irwin Accutrac A250	Wangtek 3080
Irwin SXe 120 and 250	Wangtek FAD 3500 Internal 40MB
Irwin SX 5540 and 5580	Well-Tech (Colorado drive for Toshiba T5200)

NOTE *If you use a tape drive that is connected to your high-speed floppy controller card, you cannot access the floppy drives during the tape backup.*

Certain tape drives only work with specific-density controller cards. A drive requiring a high-density floppy controller card normally found on AT-class machines will not work on an XT-class machine with a low-density floppy controller card. However, that same drive may work on an XT if a secondary high-speed controller card is used for the drive. Be sure you know the type of controller card your system has and if the tape drive you want to use is compatible with it.

NOTE Both 80MB Irwin and QIC-80 drives can read, but not write, a 40MB formatted tape. Neither 40MB Irwin nor QIC-40 can read or write 80MB formatted tapes. Irwin drives can read only Irwin tapes (except for the SX series), as Irwin uses a servo-technique that is not compatible with other tape drives.

SCSI Tape Drives

Central Point Backup is compatible with the following SCSI tape drives:

Archive Python DAT (1.3GB)	Mountain 7250 (250MB)
Archive Viper 2060 (60MB)	Mountain 7500 (500MB)
Archive Viper 2150 (150MB)	Mountain 1200 (1.2GB)
Archive Viper 2525 (525MB)	NCR 6100 (150MB)
Archive Viper 5250 (250MB)	NCR 6300 (525MB)
Cipher ST150 (150MB)	NCR 2101 (2.2GB)
Compaq 320/525 (525MB)	Tandberg 3600 (150MB)
Exabyte 8200C (2.5GB)	Teac MT-01 (250MB)
Exabyte EXB-8500 (5GB)	Tecmar THS-2200 (2.2GB)
Exabyte EXB-8200SX (2.5GB)	Tecmar ProLine 250 (250MB)
Exabyte EXB-8200 (2.5GB)	Tecmar ProLine 525 (525MB)
Hewlett Packard C1502A DAT (1.2GB)	Tecmar ProLine Data Vault (1.2GB)
Hewlett Packard C2224 DAT (1.2GB)	WangDAT 1300 (1.3GB)
Maynard 250Q (250MB)	WangDAT 3100 (1.3GB)
Maynard 525Q (525MB)	WangDAT 3200 (1.3GB)
Maynard 1300+ (1.2GB)	Wangtek 5099ES (60MB)
Maynard 2200+ (2.2GB)	Wangtek 51000ES
Mountain 2100 (2.2GB)	Wangtek 5150ES (150MB)
Mountain 7150 (150MB)	Wangtek 5525ES (525MB)
	Wangtek 7200HS (2.2GB)

Tape Formatting (non-SCSI)

Formatting a tape is a process that is required only once; however, it is a good idea to purchase preformatted and certified tape cartridges. This is not only more convenient for you, but also saves time during a backup. Central Point Backup can format a tape during a backup, if necessary, but the time involved is considerable. Use the Format command on the Tape Tools menu to format a tape before you use it.

NOTE Most SCSI tapes are already formatted when you purchase them; however Central Point Backup can format a SCSI tape as necessary.

Every tape must have two things done to it before it is ready to use:

- **Formatted (initialized):** Formatting lays out data tracks and maps them for the read/write mechanism. This process is very similar to formatting a floppy disk. Formatting a tape is not the same as erasing a tape. Erasing deletes data from the tape; formatting lays out the data tracks that the data is stored on.
- **Certified:** Verifies the tape by checking for bad blocks and locking them out (similar to DOS locking out bad sectors on a floppy disk). This is done last.

An Irwin-formatted tape has one additional process done to it before it is formatted and certified:

Servo-written: Writes permanent information to the tape. This information is precisely placed along the track so the tape drive's read/write mechanism is guided along the proper data tracks. This is usually a one-time-only procedure. If a tape ever needs to be servo-written again, you should bulk-erase the tape first.

The following table shows the approximate time it takes to fully format various non-SCSI tapes. The third and fifth columns refer to special tapes that can be formatted to greater capacity. These tapes are marked "XL," which means they have extra length. If you buy a 40MB tape marked XL, you can format it to hold 60MB of data. Similarly, if you buy an 80MB XL tape, you can format it to hold 120MB of data.

Procedure	40MB non-SCSI tape	40MB XL non-SCSI tape	80MB non-SCSI tape	80MB XL non-SCSI tape
Servo-written (Irwin only)	36 min	54 min	51 min	76 min
Formatted	18 min	27 min	33 min	50 min
Certified	18 min	27 min	33 min	49 min
Totals:	36 min	54 min	66 min	99 min
Totals with servo-write:	72 min	108 min	117 min	175 min

These times are based on a 500 Kbps (kilobits per second) data rate that a high-density floppy disk controller uses, such as those found in AT-class machines. All times should be doubled if done at the 250 Kbps rate used by low-density floppy disk controllers, such as those found in XT-class machines. All times should be halved if using a high-speed 1000 Kbps controller card.

If you insert a blank tape, Central Point Backup first rewinds the tape and attempts to read the tape header. If that is unsuccessful, the tape is retensioned and you have the opportunity to format the tape, insert a new tape, or cancel.

QIC Format and Central Point Format

Central Point Backup supports the standard QIC-40/80 format for tapes and the proprietary Central Point format. There are some differences between the Central Point format and QIC, which are summarized in the following table.

QIC	Central Point
Freely interchangeable with other QIC format backup programs.	Proprietary format can only be restored with Central Point Backup.
Writes directory information at the beginning of the backup set.	Writes directory information at the end of the backup.
Supports all backup methods but incremental because of placement of directory.	Supports all backup methods.
May have to insert every tape of a multiple-tape backup to restore a single file.	Only needs the specific tape of a multiple-tape backup to restore a single file.
If the first tape (where directory is stored) of a multiple-tape backup is lost, no data is recovered from any of the remaining tapes (even if a history file exists on the hard disk). You cannot restore any data contained on tapes beyond the missing tape. (Example: If tape #3 of a six-tape backup is lost, only the data on tapes 1 and 2 can be restored.)	If last tape (where directory is stored) of a multiple-tape backup is lost, but the history is on the hard disk, all data up to the missing last tape is recovered. As long as a directory exists (on tape or hard disk), all data is recovered except what was contained on the missing tape.

There is no significant performance increase of one format over the other, and both formats use about the same amount of space on the tape (all things being equal such as method and compression).

Once a tape is formatted as QIC, it does not need to be reformatted as Central Point because the low-level formatting is identical. There is one exception to this — non-SX Irwin tape drives. These drives use special servo-writing (described previously) which is not QIC-compatible. The Irwin SX series of tape drives is QIC-compatible.

Be aware that using encryption on a backup set written to a QIC tape makes that backup set unrestorable by other QIC-compatible backup programs.

NOTE *If you are backing up server\olumes to a QIC-format tape, be sure the **Save History** command is on. This ensures the name of the server\volume is saved with the backup information on your hard disk. Because of the way QIC format was designed, server\volume names cannot be saved on the tape itself.*

Tape Controller Card Technical Information

Central Point Backup supports various manufacturers' floppy and tape controller cards. In many cases, the card is recognized and used with no information required from you. However, some cards require special parameters to be set the first time you use Central Point Backup so the card is recognized for future backups. This is saved in the default configuration file. This section details the various cards that require this special information.

Adapter cards connect between the primary floppy disk controller and the floppy disk and tape drives. Central Point Backup automatically detects the following cards when you choose Search with the Define Equipment command.

- Archive XL20A
- Colorado AB-10
- Irwin 4251

Secondary Tape Controller Cards Supported (Micro Channel)

It is not necessary to specify any address information for these cards:

- Irwin 4100MC
- Mountain MACH2 (Micro Channel)
- Tecmar MCA Floppy Tape Controller

Secondary Tape Controller Cards Supported (Industry Standard Architecture — ISA)

The following tape controller cards must have the I/O port address, IRQ channel, and the DMA channel specified.

Tape Drive	ADDR	IRQ	DMA
Alloy FTFA Controller	340	3	2
Colorado FC-10	180	3	2
Colorado TC-15	180	3	2
Compaq Expansion Chassis #1075-70-001	370	6	2
Iomega IHA-10p	370	3	1
Irwin 4100	370	3	2
Mountain File Safe 8500	130	E	0
Mountain MACH2	3E7	5	3
Summit Accelerator	3E7	5	3
Summit SE 305	130	E	0
Tecmar QT	300	3	1
Wangtek Lightning Thunderbolt	300	3	1

The addresses listed are the factory settings of the cards. If you have altered these settings in any way, you must specify the values you have set so Central Point Backup can recognize the card.

You can specify settings by entering the correct values in the Tape Configuration dialog box, which you access with the Define Equipment command.

SCSI Host Adapter Cards

A SCSI tape device is connected to your PC with a special SCSI adapter card. Central Point Backup supports the following cards:

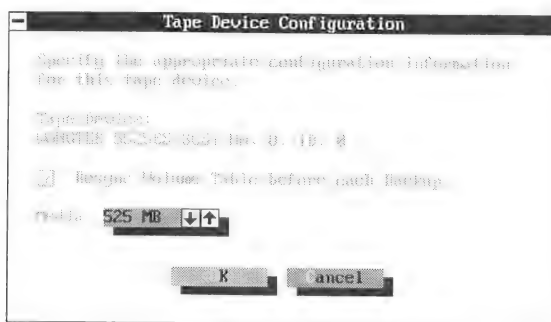
- Adaptec AHA-1520/1522/1510 AT
- Adaptec AHA-1540/1542 AT
- Adaptec AHA-1640 MCA
- Adaptec AHA-1740/1742/1744 EISA (in 1540 emulation mode)

The following table lists Adaptec files that are shipped with Central Point Backup. If you are currently loading older Adaptec ASPI drivers in your CONFIG.SYS file, replace them with the appropriate file listed in the following table. Doing so enables Central Point Backup to run faster and use less memory.

File	Description	Directory
ASPI4DOS.SYS	Adaptec AHA-1540/1542/1640 ASPI manager.	\SYSTEM
ASPI2DOS.SYS	Adaptec AHA-1520/1522/1510 AIC-6260 ASPI manager.	\SYSTEM
ASPIEDOS.SYS	Adaptec AHA-1740/1742/1744 ASPI manager.	\SYSTEM
ADAPTEC.TXT	Text file with information on Adaptec host adapters and ASPI managers.	\PCTOOLS
VASPID.386	"ASPI for Windows" VxD for enhanced mode.	\SYSTEM
WINASPI.DLL	Protected mode ASPI interface ("ASPI for Windows").	\SYSTEM

Synchronizing the Volume Tape Content (VTC) Files

During the SCSI configuration of Central Point Backup, a dialog box similar to the following appears:



(The options that appear in this dialog box may vary, depending on the type of SCSI adapter card you have.)

A *.VTC (volume tape catalog) file is written to your hard disk after the backup process for each SCSI tape used, and is subsequently updated after each backup.

When the **Resync Volume Table before each Backup** option is on, which is the default setting, the *.VTC file on your hard disk is updated with the *.VTC file on the tape before the tape directory appears on your screen. This process is time-consuming because the tape must be rewound and searched for the last *.VTC file.

If you use a tape for a single PC, and you are the only one using that tape, you can safely turn off the **Resync Volume Table before each Backup** option, since your *.VTC files will always be identical. Turning off this option saves time by not having to rewind the tape and search for the last *.VTC file.

However, if multiple users are backing up to the same tape, it is essential that the **Resync Volume Table before each Backup** option is on. This ensures that the *.VTC file on each user's hard disk always displays the actual directory of the tape.

If there is any doubt about the contents of a SCSI tape, choose the **Catalog** button in the Tape Directory dialog box, which automatically compares and updates the VTC files.

Backup Strategies

Backing up your data depends in good measure on how frequently that data changes. You should consider the following questions:

- How valuable are my files to me or my business?
- How many of my files change on a daily basis?
- How long would it take to replace those files if something happened to them?

Central Point Backup offers several methods of backing up your data, depending on drive, media, and speed. Each method is explained in the *Backup Methods* chapter in this part.

Here's what you'll find in this chapter:

- **Floppy Disk Backup Strategy** explains a couple of ways to back up to floppy disks.
- **Tape Backup Strategies** explains how to schedule backups to tape and why you should rotate tapes for maximum safety of data.
- **Removable Media or Network Backup Strategies** explains how Central Point Backup backs up your data to low-speed devices.

Floppy Disk Backup Strategy

Make and use setup files for different backup methods, or use the WEEKLY and DAILY setup files that came with Central Point Backup. Use at least two sets of backup disks so that you are never overwriting your last backup with the current backup.

Using a Preconfigured Setup File

Central Point Backup ships with a preconfigured setup file (WEEKLY) that is set to back up all files on your first hard drive (usually C) and another one called DAILY that backs up only the changed files since the last full backup.

1. Start Central Point Backup on Friday by typing:

```
CPBACKUP WEEKLY
```

2. Begin your backup using the first set of floppy disks.

3. Label each disk with its backup sequence number, name, and set number. For example, #1, *Friday backup, Set A*. The next disk would be #2, *Friday backup, Set A*, and so on.

4. Start Central Point Backup on Monday through Thursday by typing:

CPBACKUP DAILY

When prompted, insert the last disk of your backup set (if doing an incremental backup). For example, if you used 25 disks for your Friday backup, you would insert disk #25 of backup set A. When prompted, insert additional disks as needed.

5. Label each disk with its proper sequence number (#26 of Set A, #27 of Set A, and so on).

Each day, you back up and append the changed files to the Friday full backup set. By the end of Thursday's daily backup, you may have several disks beyond the original 25 you used on Friday.

Conversely, if you do a differential backup, you are prompted to insert a new disk each day. If the need to restore ever arises, you restore the full backup and the last differential disk.

Even-Numbered Weeks Starting on Friday

Repeat the above steps, using the second set of floppy disks. Be sure to label these as *Set B*.

Using Different Backup Methods

For many people, a monthly full backup is sufficient, coupled with daily backups of the changed files. Use one of the following methods, depending on your particular needs, every day:

- Do a daily differential backup to floppy disks. Alternate between two sets of disks for safety. When the sets use more than six floppy disks, do another full backup. The differential method does not save multiple daily versions of the changed files. It only saves the latest versions.
- Do a separate incremental backup on Monday (which starts a new backup set), followed by daily incremental backups to floppy disks. This keeps daily versions of the files that change, but creates less backup sets than using separate incremental exclusively.

Tape Backup Strategies

A tremendous advantage to using a tape drive for your backup is its ability to totally automate your backups. A simple strategy is to use at least two tapes so you are never writing over your last backup with the current backup.

Two-Tape Strategy

1. Schedule a weekly full backup using the WEEKLY setup file and *Tape #1*.
2. Schedule a daily backup using the DAILY setup file and *Tape #1*.
3. Use *Tape #2* the second week, and continue alternating tapes each week.

Another popular backup strategy, referred to as "Grandfather, Father, Son," uses 10 tapes and gives you a complete backup of 12 weeks' data.

Ten-Tape Strategy

1. Label the tapes as follows:

1—Monday	6—2nd Friday
2—Tuesday	7—3rd Friday
3—Wednesday	8—1st Month
4—Thursday	9—2nd Month
5—1st Friday	10—3rd Month

2. Use tape 5 on the first Friday and back up your entire system.
3. On the following Monday, use tape 1, labeled *Monday*, to do a separate incremental or differential backup of the changed files.
Repeat this every weekday, using the appropriately labeled tape.
4. On the second Friday, use tape 6 (*2nd Friday*) for another full backup, and repeat the Monday through Thursday backups, using the corresponding tapes (you will overwrite these tapes).
5. Repeat step 4 for week 3, using tape 7 (*3rd Friday*).
6. Repeat step 4 for week 4, and use tape 8 (*1st Month*) on the fourth Friday.

7. Repeat steps 2 through 6, using tape 9 (*2nd Month*) on the fourth Friday of the second month, and tape 10 (*3rd Month*) on the fourth Friday of the third month.

In subsequent months, recycle the three “Month” tapes, always overwriting the oldest tape.

Combining Disks and Tapes

Another strategy is to do full backups to tape, with subsequent differential or separate incremental backups to floppy disks. This saves the expense of purchasing a lot of tapes (as in the above strategy).

Removable Media or Network Backup Strategies

If you are backing up to a removable cartridge such as a Bernoulli or SyQuest drive, or to a directory on a network, the best way to back up your data is as follows:

1. Create a subdirectory named FULL on the network or cartridge and do a full backup, either weekly or monthly, to it.
2. Create two subdirectories named DAILY1 and DAILY2 on the same drive. Alternate daily differential backups to the two DAILY directories.

By creating the three subdirectories, you avoid the problem of overwriting the three files that Central Point Backup writes that contain your data and information about the backup. These three files are:

- CPBACKUP.001, which contains your backed-up data.
- CPBACKUP.DIR, which contains the directory of the backed up data.
- CPBACKUP.INF, which contains boot record information.

Backup Methods

This chapter explains the backup methods that Central Point Backup offers. It is not required reading, but is provided for those who would like to know the different ways to back up data, how to use each method, and why you would want to use it.

The Archive Bit

Central Point Backup can detect what files have changed between backups by the status of the archive bit. The archive bit is a special status bit that is contained in the directory entry for every file on your hard disk. This bit determines if a file has changed since the last backup. When you change or create a file, DOS sets the archive bit. Central Point Backup uses the archive bit as an indicator of whether a file has changed or added since the last backup. The method you choose to back up your files determines how Central Point Backup uses the archive bit.

To see which files in a tree have their archive bit set, select Display Options, Long Format, then display the tree. You can see the "A" attribute for every file that has it set.

Backup Methods

The following table explains each backup method and the effect each has on the archive bit of a backed-up file:

Backup Method	How it Backs Up Your Hard Disk
Full	Selects all files specified by Selection Options, regardless of the setting of the archive bit. A full backup is the default setting. A full backup clears the archive bit after the backup is finished. This marks each file as being backed up.

Continued

Backup Method	How it Backs Up Your Hard Disk
Full Copy	The same as a full backup except that it does not change the archive bits. All files are backed up and their corresponding archive bits remain in the same state they were in prior to the backup.



The next two options are available only if you have your drive and media set to a tape drive.

Full/Erase Tape	This is a full backup to tape, starting the backup at the beginning of the tape, regardless of any previous backups that may be on it.
Full/Append to Tape	This is a full backup to tape, starting a new backup immediately after the last backup on the tape.

NOTE Start with a full backup to set the archive bits before using any of the following three methods.

Incremental	Selects only files specified by Selection Options that have their archive bits set. A history file of all backed-up files is stored on the backup media. An incremental backup writes the new backup data to the end of a previous backup (usually a full) and then merges the history file of the incremental with that of the full backup, making one backup set and history file. Multiple incremental backups are appended to a full backup. After backing up the new or changed files, it clears the archive bit.
-------------	---

Continued

Backup Method	How it Backs Up Your Hard Disk
Separate Incremental	Selects the same files as incremental, but does not append to a previous backup. It maintains its own history file within each backup set. After backing up the new or changed files, it clears the archive bit. Each separate incremental backup starts on a new disk and overwrites any data on the disk. When making multiple-drive incremental backups to a tape, you must use the separate incremental method.
Differential	Selects the same files as incremental, but the archive bits for the files it backs up remain in the same state they were in prior to the backup. Each differential backup starts on a new disk. You can also reuse previous differential disks, which overwrites any data on the disk.

The following section discusses the advantages and disadvantages of each backup method, giving an example of how each method works.

Full Backup

- Advantages:** This method is safest because everything is backed up. If your hard disk experiences a problem after your backup, then restoring all or some of the files, as well as the entire directory structure, from a full backup is easy. A full backup is contained in one set of disks or tapes.
- Disadvantages:** Doing full backups exclusively can be time consuming and use many disks or tapes.

Example:

Day	Files Changed	Files Backed Up
Friday	A B C D	A B C D
Monday	A B	A B C D
Tuesday	A B C	A B C D

Full Copy Backup

Advantages: You can back up files from a write-protected device, such as a CD-ROM drive or network drives. You can make multiple backups for off-site storage. You can back up a hard disk that is experiencing problems without writing to it. (When you are having hard disk problems, writing to it may cause even worse problems to happen.) You can make a “copy” of the hard drive at the office to take home to “restore” on your home computer without affecting the archive bits for future incremental or differential backups.

Disadvantages: Subsequent incremental, separate incremental, or differential backups are redundant if based on a full copy backup. The reason is that some of the same files are backed up, since the archive bits were not set.

Example:

Day	Files Changed	Files Backed Up
Friday	A B C D	A B C D
Monday	A B	A B C D
Tuesday	A B C	A B C D

The following methods are partial backups that only back up changed or new files since the last full or incremental backup. Each handles the backup disks or tapes in different ways.

Incremental Backup

Advantages: This form of backup provides a daily version of your files by appending the changed files to the full backup. In the event of a restore, all the files needed to restore your system to the point of your last backup are in one backup set of disks or tapes. You can also restore just one day’s version of your files. This method is usually much faster than doing a full backup every day.

Disadvantages: If you change large files daily, you have multiple copies of that file on your disks or tapes, which takes up space. If you make multiple-drive full backups to one tape, you cannot do incremental backups to that same tape (only to the last backup on the tape, and the tape must be in CPS-format).

Example:

Day	Files Changed	Files Backed Up
Friday	A B C D	A B C D
Monday	A B	A B
Tuesday	B D	B D

In the above example, there are three versions of file B in the backup set.

Separate Incremental Backup

Advantages: This is the same process as the incremental backup described previously. However, a separate incremental backup does not append itself to the parent full backup. You can lock the full backup disks or tapes away for safe-keeping, and use different disks or tapes for daily backups of changed files using the separate incremental method. If you are using tape, you can make multiple full and separate incremental backups to the same tape.

Disadvantages: Having multiple sets of disks or tapes with daily changes can lead to confusion or lost disks. Each separate incremental backup requires a separate disk or set of disks. If you have to rebuild your hard disk, each separate incremental backup must be restored in reverse order, followed by the full backup.

Example:

Day	Files Changed	Files Backed Up
Friday	A B C D	A B C D
Monday	A B	A B
Tuesday	A B C	A B C

In the previous example, there are three versions of files A and B on three different sets of disks.

Differential Backup

Advantages:

If you are working with large files that change frequently, then a differential backup saves media by allowing you to use the same disks or tapes over and over for the daily backup. In the event that you need to restore your hard disk, you would restore your latest differential set first, and then the full backup. As soon as you complete a new differential backup, the older differentials are no longer needed and may be reused.

Disadvantages:

You do not have daily versions of files if you are using the same disks for backing up every day and the disks are likely to wear out faster as they are used more often. If you are using tapes and doing unattended differential backups, you end up backing up the same data multiple times, because each differential backup is appended to the tape. Do not use a tape for unattended differential backups for this reason.

Example:

Day	Files Changed	Files Backed Up
Friday	A D	A D
Monday	B	A B D
Tuesday	A B C	A B C D

NOTE Never mix the partial backup methods you use after a full backup, unless you are very sure of what you are doing. If you start with the incremental method, then continue to use that until your next full backup. The same is true for using the differential method, since one method clears the archive bit and the other leaves it alone.

The following table summarizes each backup method and what it does:

Backup Method	Changed files only	Resets archive bit	Selected files	Creates new set	Appends to a previous backup
Full		X	X	X	
Full Copy			X	X	
Incremental	X	X			X
Separate Incremental	X	X		X	
Differential	X			X	

Technical Information

Memory Requirements

Central Point Backup requires different memory allocations, depending on the configuration of your system. The Express interface needs approximately 470K. If you are backing up to a QIC-drive connected to a high-speed (1000Kbps) controller card, you'll need approximately 515K of available memory. A backup to a SCSI device requires approximately 475K.

Memory-Resident Programs

Memory-resident, or terminate-and-stay-resident (TSR) programs, are small applications that remain ready to be called up at a moment's notice. These programs may be brought up over other active programs.

WARNING If you are running memory-resident programs (other than CPSCHED or any PC Tools programs), turn them off before running Central Point Backup to be sure of a good backup.

NOTE *You can leave memory-resident mouse drivers in memory.*

If you do have a TSR program in memory, do not hotkey into it in the middle of a backup or restore. If a TSR changes files during a backup, a subsequent comparison may not be accurate.

Caching

Disk caching is a technique that speeds up hard and floppy disk access by storing the most frequently used information in your computer's memory. It speeds programs by reducing the number of times the computer has to wait for the disk when reading commonly used information.

PC-Cache, provided in Central Point's PC Tools, is a disk-caching program. PC-Cache does not interfere with the operation of Central Point Backup. However, other disk caching programs, such as SmartDrive and Lightning, may pose problems, especially if the caching program is set to cache floppy drives. Turn off floppy drive caching if you are backing up to floppy disks, and then test your configuration with a trial backup and comparison first.

Fax Card Users

If you have a fax card installed in your computer, unpredictable results may occur if a fax should arrive in the middle of a backup. Turn off your fax card before starting a backup or restore.

Setting Central Point Backup's Environment Variable

If you use Install to copy Central Point Backup to your hard disk, all of the necessary files are written to the default directory or the directory you specify.

Central Point Backup recognizes four environment variables: TEMP, TMP, CPBACKUP, and PCTOOLS. The variables TEMP and TMP define the path where temporary files are written. The variables CPBACKUP and PCTOOLS define the path where directory files (.DIR, .CAT, and .VTC), reports (.RPx), and setup files (.SET) are written.

Central Point Backup looks in the DOS environment space for the environment variable setting. If more than one is specified, it uses the last one. If none are specified, the .DIR, .SET, .RPx, .CAT, and .VTC files are written to the directory in which Central Point Backup is installed. Temporary files are written to the root drive and deleted after the backup is complete.

You can specify a directory to write to, using the environment variables. For example, if you have all your application files contained in the installation directory on drive C and want to save all the data files in a directory called FILES, you must add the following line to your AUTOEXEC.BAT file:

```
SET CPBACKUP=C:\FILES
```

Buffers and Stacks

Two DOS commands, BUFFERS and STACKS, are used in your CONFIG.SYS file exclusively. Each command uses RAM to optimize system performance to some degree and can help with backup problems.

Buffers

An area of memory is reserved by DOS as a scratch, or temporary, area that DOS uses to process disk input and output. This area is in turn separated into smaller areas called *buffers*. Depending on the machine, the version of DOS being used, and the use of a caching program determines the number of BUFFERS to set in your CONFIG.SYS file. Values can range from 1 to 99, with the most common being in the range of 10 through 35. The more buffers you have, the less memory may be available for other applications.

Stacks

The STACKS command defines the number and size of stacks for system interrupt handlers.

The two numbers following the STACKS command in your CONFIG.SYS file refer to the number of stacks allowed and the size of each stack. DOS sets a range of 8 through 64 for the number of stacks and 32 through 512 for the size.

If you are having difficulty with unreliable comparisons in Central Point Backup, try changing your STACKS command.

The default number of stacks set up by DOS 3.2 through 5.x or recommended by QEMM (which is 0, 0) may not be sufficient for some systems with controllers that support 1:1 interleave. If you receive an "Internal Stack Failure" message, or if Central Point Backup freezes up during a backup, restore, or compare, make the following change to your CONFIG.SYS file:

```
STACKS=X, 128
```

Use a value for x equal to the number of sectors per track of your hard disk.

The following table shows some typical values:

Drive Type	Sectors per Track
MFM	17
RLL	25 or 26
ESDI	34, 35, or 36
IDE	up to 63

If you installed Windows 3.1, a STACKS=9,256 line was added to your CONFIG.SYS file, or if you already had a STACKS line, it was changed to STACKS=9,256. If you are experiencing consistent miscomparisons with Central Point Backup, change your STACKS= command as outlined in the previous paragraph.

If your machine has a translating controller card (such as with a IDE hard drive), the values it reports for the sectors per track (using a program such as PC Tools System Information) may be false. Consult the manual that came with the hard drive to determine the actual sectors per track.

Memory Managers

If you are experiencing problems when formatting floppy disks during a backup with Central Point Backup for DOS, *and* you are using a memory manager such as QEMM, 386Max, or EMM386.EXE , you may need to set the DMA parameter to 32. Check your CONFIG.SYS file for the DEVICE= line that contains the parameters for your memory manager. For example, if you are using the DOS 5 EMM386.EXE memory manager, the line might look like this:

```
DEVICE=C:\DOS\EMM386.EXE X=DE00-DFFF NOEMS /D=32
```

Consult the documentation that came with your memory manager for the correct syntax to use.

Running Central Point Backup with an All Chargecard

When running Central Point Backup on a system with an All Chargecard installed (286 version only), you must perform the following steps every time you run Central Point Backup. If you do not, the program will not work correctly.

- 1. Run the DMAFIX/SET program, which is packaged with the All Chargecard.
- 2. Run Central Point Backup.
- 3. Run the DMAFIX/RESET program.

Files Not Backed Up by Central Point Backup

The following table lists the files that are automatically skipped during a backup.

File or Extension	What It Is
\SENTRY*.*	Deleted files that are saved by Central Point's Datamon program.
PCBACKUP.nnn CPBACKUP.nnn	Files created by Central Point Backup when using low speed.
d_BACK.DIR	Temporary file created during an incremental backup.

Continued

File or Extension	What It Is
MIRORS.VIL MIRROR.VIL MIRROR.BAK PCTRAK.DEL	Central Point delete tracking files.
CHKLIST.CPS	Central Point Anti-Virus file.
CPBACKUP.CFG WNUSER.INI	Central Point Backup configuration files.
386SPART.PAR WIN386.SWP	Windows swap file information.
CPBTREE.VMD CPBFILE.VMD	Temporary files created by Central Point Backup.
QIC.TMP	Temporary file created by Central Point Backup.
TEMPLOG.TMP TEMPLOG2.TMP LOGDIR.TMP	Temporary files created by Central Point Backup.
CPCAT.TMP CPMOE.TMP CPVTC.TMP	Temporary files created by Central Point Backup.
CPCURSEG.TMP	Temporary file created by Central Point Backup.
CPTASK.IMG	Temporary file created by the PC Tools Task Switcher.
SCHEDULER.IMG	Temporary file created by the PC Tools Program Scheduler.

Novell Files Not Backed Up by Central Point Backup

The following table lists NetWare files that may be skipped during a backup.

NETWARE 386 Server Files	Description
SYS:\BACKOUT.TTS	Transaction tracking system file.
SYS:SYSTEM\NET\$OBJ.SYS SYS:SYSTEM\NET\$PROP.SYS SYS:SYSTEM\NET\$VAL.SYS	Bindery files. These are backed up only if the checkbox is selected in the Bindery/Trustee dialog box.
SYS:SYSTEM*.QDR*.*	Novell print queues.

NETWARE 286 Server Files	Description
*:DIRSTAMP.SYS	Trustee information file. Backed up only if the checkbox is selected in the Bindery/Trustee dialog box.
SYS:SYSTEM\NET\$BIND.SYS SYS:SYSTEM\NET\$BVAL.SYS	Bindery files. Backed up only if the checkbox is selected in the Bindery/Trustee dialog box.

Files Not Compared by Central Point Backup

File Type	Description
*.DIR	History file.
.RP	Report file.
*.CAT	SCSI catalog file that works in conjunction with the .DIR file.
*.VTC	SCSI volume tape catalog file.
Novell bindery files	Since these files change constantly on a network, they are skipped during a comparison.

Troubleshooting Backup

This chapter contains error messages and probable solutions to help if you should encounter one of them in the course of using Central Point Backup.

General Error Messages

Bad disk in drive

- The wrong disk or tape may have been inserted (a 1.2MB disk was expected, but a 360K was inserted).
- Also, if you are using a drive other than A or B to back up to, and the disk is not formatted, this error message appears. Central Point Backup requires preformatted media when you are using the Fixed or Removable drive and path options, or if you are backing up to disks in drives other than A or B.
- Check your backup speed. If the inserted disk was used in a high- or medium-speed backup, and the current setting is low speed, this error may occur. In this instance, select the Format button in the Disk Insert dialog box.

Disk appears to contain data

The disk you are about to use appears to be a DOS-formatted disk that may contain data. Central Point Backup checks to see if the disk is formatted, but not whether it has any data. Choose OK to write on this disk, Cancel to abort this backup, or Retry after inserting another disk in place of this one.

Error CPU running too slow for overlap mode

This system cannot handle the high data rates necessary for high-speed DMA mode. Therefore, Central Point Backup automatically drops to the /NO option mode with no overlapped DMA.

Error decompressing file

An error was found during the decompression of this file while restoring. The file is probably corrupted. This should not happen if you backed up with verify on unless the disk was damaged sometime after the backup.

Error General Hardware Failure xx

You may see this message followed by a specific number. These messages generally indicate faulty hardware, wrong configuration, or the need to use the /NO parameter. Try the following:

- Check your setup to be sure you have selected the correct drive type and media types.
- Check your drive to be sure the disk is inserted properly and the drive latch is secure.
- Determine if you have any memory-resident programs that are interfering with the operation of Central Point Backup.
- Try running Central Point Backup with the /NO parameter. This turns off the high speed DMA overlap, which is the same as setting the backup speed to medium.

Error not a Central Point Backup disk

The disk you are attempting to restore from was created by an earlier version of Central Point Backup, or you may have the wrong backup speed selected. Low-speed backups can only be restored at low speed. High- or medium-speed backups may be restored at either high or medium speed. Also, check the media settings to be sure they are correct.

Error reading backup directory Backup directory not found

These errors indicate that Central Point Backup either couldn't find a history file on the disk inserted as the last disk or that the history file was damaged. If this was not the last disk of the backup set, choose Retry and insert the correct disk.

If you want to proceed with a restore without a good last disk, choose Rebuild. You will be prompted for the first disk of the backup set. The history file is then reconstructed from the entire set of backup disks.

Error Track 0 bad or check your drive and media settings

This error may indicate:

- a damaged disk — try another disk.
- that you are using the wrong backup speed. Try a different setting.
- a conflict with a TSR.

Check your drive and media settings and be sure you are using the correct media.

NOTE Try using **Media Format** ► **DOS Format** if you are experiencing trouble on an Amstrad computer.

Error writing track 0, unable to recover (Check Setup)

This message indicates that Central Point Backup was unable to successfully write to and verify the first sector of the current disk. Either the disk is defective or perhaps your setup is not correct for the type of disk drive installed. (For example if you have a 1.2M drive and it is set up as a 360K drive.)

Fatal Error: RTLInk CACHE -Expanded memory handling

This message indicates a memory problem. Set the following environment variables before running Central Point Backup:

```
SET RTVMEXP=0
```

```
SET RTVMEXT=0
```

File missing

Once a backup has started, the directory and file structure for the specified drive is in memory. If you delete any files while the backup is progressing, this message appears because Central Point Backup does not find a file where it "remembers" it should be.

Insufficient disk space for temporary file

Central Point Backup needs to create temporary files while processing. The drive must not be write-protected and must have space available (approximately 80K per 20M of disk being backed up or 120K if using a SCSI device).

NOTE If you are using a RAM drive for temporary files, be sure it is big enough to contain them.

The temporary files are written to the directory specified by the environment variables: TEMP=, TMP=, or directly to the root directory of the first local non-removable drive.

Nonremovable drive full

There is no more space on the destination drive during restoring or backing up. You should cancel the process and check your destination drive for files you can remove, or check whether the specified drive and path (restore to) is valid. This error may occur if you are backing up to a fixed drive and path.

Unable to open file

Central Point Backup has encountered a file that is open and in use. You can set the Retry on Busy File option (from the Configure menu) to keep trying for a set period of time. However, the default is to skip open or busy files and continue.

Unable to read media

Check that the disk is properly inserted and the drive latch is secure.

General Tape Error Messages



If Central Point Backup fails to recognize your tape drive:

- Check the values you are entering (if it is a configurable drive).
- Check the list of supported drives.

Cannot back up to 40/60MB tape in 80/120MB tape drive

An 80MB drive can restore from, but not back up to, a 40MB tape. Try using an 80MB tape, formatting the tape, or using a blank tape.

Invalid I/O port address specified; Invalid Interrupt channel Invalid DMA channel specified

These errors may occur if Central Point Backup cannot recognize the tape controller card. You may need to use the Define Equipment command from the Configure menu to specify the correct values.

No tape drive detected

Central Point Backup was unable to find a tape drive. Try running the Define Equipment command from the Configure menu. After reconfiguring, use the Save as Default command from the File menu to save the new information.

Tape drive does not have long-tape capability

Your drive is unable to handle extended-length tapes. This is true of some older Irwin and Alloy/CMS drives.

Tape is not empty

This error message occurs if you are prompted to insert another tape during a backup. This tape must be empty. If it is not, you are given the option to erase the tape or insert a new tape.

Tape needs certification

You may insert a new tape, or have Central Point Backup certify the tape for you.

Tape volume table is full

The volume table of a tape holds the names of the backup sets contained on the tape. If the number of backup sets exceeds a certain number, the volume table cannot keep track of them all and presents this message.

This tape has too many bad blocks to be used with CP Backup

Central Point Backup can lock out bad blocks on a tape, but if it finds an excessive number (more than 100), it considers the tape unusable.

This tape is not a Central Point Backup tape

Central Point Backup is unable to read the data on your tape. The tape does not appear to contain standard QIC format or Central Point backup sets.

Unable to read tape header

A tape header is similar to a disk's directory. It is a map to the contents of the tape. If it somehow gets damaged or erased, the information stored on the tape is lost.

Unsupported tape drive

Central Point Backup does not support your tape drive. This usually is due to an attempt to use a high-density tape drive with a low-density controller card.

Unsupported tape type

Central Point Backup does not support the tape you are trying to use. Make sure it is a DC2000, DC2080, or DC2120 1/4" tape.

Error while performing Tape Tools Command

This is a general message that appears if something went wrong when Central Point Backup attempted to carry out the command you selected. Check the tape and the drive to ensure it is properly connected and seated in the drive. Try the command again.

Error Writing Directory Files

The hard disk may be full or write-protected. If you backed up to a network volume, you may not have write-privileges to the volume where the directory files are being stored.

SCSI Information

This section explains some of the problems or concerns that occur if a SCSI host adapter card is in use. For specific error messages that are generated by your particular host adapter card, see the documentation that came with the card, or the ADAPTEC.TXT file included with Central Point Backup.

ASPI (Advanced SCSI Programming Interface)

If you are running multiple SCSI devices on an Adaptec card and using the ASPI driver in your CONFIG.SYS, then choose the ASPI driver when configuring Central Point Backup. Otherwise, if a tape drive is the only device on the card, choose the direct access driver (specific for each type of Adaptec card). The main advantage in using the direct access driver is that it uses less conventional memory than the ASPI driver.

NOTE *If you are running ASPI in DOS, you must also run ASPI in Windows.*

See the ADAPTEC.TXT file, included with Central Point Backup, for a more detailed explanation of ASPI, and when to use it.

If you add a tape device to an existing SCSI host adapter card that already has other devices on it, be aware of other drivers. If the host adapter card is from Adaptec, chances are high the driver is their ASPI driver. If the card is not from Adaptec, another driver may be in use, not necessarily ASPI. You may find that your new tape device works fine with Central Point Backup, but you've lost the ability to access the other devices.

NOTE *Some ASPI drivers, provided by manufacturers other than Adaptec, cannot access a SCSI device unless that device is powered on when the computer starts up. Consult the documentation that came with your host adapter card for information on its driver.*

Hard Drive Controller

If you are using a SCSI hard drive controller, it tends to demand a lot of the internal data path (bus) of your machine. This in turn interferes with the speed of Central Point Backup. If you have an Adaptec card, you can adjust the card so it isn't so demanding. You need one of the following drivers (which are shipped with Central Point Backup):

- ASPI4DOS.SYS
- ASPIDOS.SYS

When you have the correct driver, add either of the following lines to your CONFIG.SYS as the first line:

```
DEVICE=path\ASPI4DOS.SYS /N7
```

```
DEVICE=path\ASPIDOS.SYS /N04 /O32
```

486 Problems

If you have a 486-class computer and have experienced problems such as:

- Failing the confidence test
- Messages about DMA overruns or invalid DMA channel
- Your machine locks up

The following suggestions may help solve the problem. Most of the reported 486 problems have been traced to hardware compatibility, with video being the chief source of problems.

NOTE *Some of these problems may occur on a 286- or 386-class machine running at 25 or 33 MHz.*

Video Drivers

If you suspect problems with your video driver, try inserting one of the following lines as the first line of your CONFIG.SYS :

```
DEVICE=path\FASTBIOS.SYS
```

```
DEVICE=path\RAMBIOS.SYS
```

These are drivers that are normally supplied by the video card manufacturer.

NOTE *The main purpose of this is to get the video ROM into RAM.*

Memory Managers

If you are running QEMM 6.x, add ROM=C000 to the QEMM line of your CONFIG.SYS, reboot your computer, and try running Central Point Backup again. The line should look similar to this:

```
device=d:\path\QEMM386.SYS option option ROM=C000
```

(*d*=drive letter and *path* is the directory containing QEMM)

NOTE *You don't need to run the QEMM Optimize program after inserting the parameter.*

If you are experiencing problems when formatting disks during a backup with Central Point Backup for DOS, *and* you are using a memory manager such as QEMM, 386Max, or EMM386.EXE , you may need to set the DMA parameter to 32. Check your CONFIG.SYS file for the DEVICE= line that contains the parameters for your memory manager. For example, if you are using the DOS 5 EMM386.EXE memory manager, the line might look like this:

```
DEVICE=C:\DOS\EMM386.EXE X=DE00-DFFF NOEMS /D=32
```

Consult the documentation that came with your memory manager for the correct syntax to use.

Novell Network Errors

Access Denied

The file specified in the dialog cannot be accessed because someone else is using it or you do not have access rights to that file. If you see this message during a restore, it means the file already exists on the volume and is marked as Read-Only, or someone is using the file, or you do not have sufficient rights to restore it.

Network could not close (directory information file), (output log file), or (trustee information file.)

The cause of this message may be hardware related or you may not have enough access rights.

<File Name> could not write to disk

You may not have enough access rights or the disk may be full.

**NetErr XX: Unknown user/object
Error 204: Network error restoring some rights information**

You tried to restore the bindery or trustee information that refers to a non-existent user, server, or other network object. The object may have existed when the backup was made, but has since been removed from the network.

NetErr XX: Unable to save <DIR NAME> dir info

The special network information for this directory couldn't be saved, probably because you do not have the rights to that directory.

Network could not open (directory information file), (output log file), or (trustee information file.)

This message usually means you do not have supervisor rights or the volume already contains the maximum number of directory entries allowed.

Miscellaneous Error Conditions

DOS Character Sets

Central Point Backup cannot restore files to a computer with a different DOS character set than the original machine. For example, if you use the German character set on your PC and back up your data, then try to restore it on another PC that is using the US character set, the files cannot restore properly because of the different characters the German language uses.

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The CPBDIR Program

The CPBDIR program determines the number of disks and the correct order of a high- or medium-speed floppy disk backup (very helpful if you forgot to label the disks in their proper order) as well as information about how the backup was made.

NOTE Use the DOS DIR command on low-speed disks to find out the disk number and date of backup. There will be two files on the disk: CPBACKUP.INF and CPBACKUP.nnn, where nnn is the disk number of the set. There will also be a CPBxxx.DIR on the last disk of the set (this is the history file).

CPBDIR is a stand-alone application that you run by typing the following at the DOS command line. (If you want to read a backup disk from a different drive, substitute that drive letter for "a" in the following example. This is the drive where the backup disk is inserted.)

```
CPBDIR a:
```

You must put a colon after the drive letter.

CPBDIR then displays information from the backup disk such as the disk number of the backup set, media used, formatting, speed used, and if a directory exists on the disk.

CPBDIR recognizes the following parameters:

d is the drive the backup disks are in.

/x shows an extended list of information about the backup disk.

The first part of the document is a letter from the President of the United States to the Congress, dated January 3, 1862.

The letter is addressed to the Senate and House of Representatives, and is signed by Abraham Lincoln.

The letter contains a statement of the President's policy towards the South, and a declaration of his intention to enforce the laws of the United States.

The letter also contains a statement of the President's views on the issue of slavery, and a declaration of his intention to support the efforts of the Congress to abolish it.

The letter concludes with a statement of the President's confidence in the Congress, and a declaration of his intention to continue to support the efforts of the Congress to preserve the Union.

The letter is a significant document in the history of the United States, as it contains the President's official statement of his policy towards the South, and his views on the issue of slavery.

The letter is also a valuable historical document, as it provides a clear and concise statement of the President's intentions and policies at a critical moment in the history of the United States.

Backup Glossary

Address	A number, expressed in hexadecimal, that specifies a location or range of locations in memory.
Archive Bit	A binary digit in every DOS file that keeps track of whether or not the data in the file has changed. When a file has been backed up, its archive bit is off. A complete discussion of the archive bit is in the <i>Backup Methods</i> chapter.
ASPI (Advanced SCSI Programming Interface)	A SCSI host adapter software driver that works with a broad range of hardware, enabling drivers to share a single SCSI hardware interface.
Attribute	An identifying bit in a file's DOS or NetWare code that details information about the condition of the file, or how it is used. DOS files can have four attributes — Read-Only, Archive, Hidden, and System. NetWare files can have up to 13 attributes, such as Indexed and Shareable.
Bindery	A Novell network database that contains information about the users and the groups they belong to on the network. The bindery is a permanent, hidden system file that is always located in the SYS:SYSTEM directory on the server.
BIOS	An acronym for basic input/output system. BIOS consist of a set of routines that control the computer's devices such as video adapters, disk drives, and printers. These routines are usually stored in read-only memory (ROM) and are a permanent part of the computer.
Block	A group of characters on magnetic tape or disk. Data is read in blocks to improve the speed.
Boot, cold	To restart your computer by physically turning the power switch off, then on, or pressing the Reset button.
Boot, warm	To restart your computer by pressing the Control Alt Del keys simultaneously.

Boot sector virus	A virus that copies itself to the boot sector of a computer's floppy or hard disk. Boot sector viruses replace the disk's original boot sector with their own code so that the virus is always loaded into memory before anything else. Once in memory, the virus can spread to other disks.
Buffer	An area of memory that is reserved by DOS to store data temporarily until the data can be transferred from storage to another location in memory.
Bus	A collection of electrically conductive paths shared by the chips on the motherboard, the processor, and any cards in the computer's expansion slots. A typical bus carries three sets of signals — control, data, and address.
Cache	A high-speed memory buffer between the computer's CPU and a mass storage device, such as your hard disk.
Catalog File	A special directory file that is written when using SCSI tapes with a .CAT extension. A .CAT, .DIR, and a .VTC file are all needed to restore any SCSI backup.
Central Point Scheduler	An application that lets you schedule backups. It requires the TSR, CPSCHEd, to launch scheduled backups.
CMOS	A battery-powered memory chip (AT-class machines or higher) that stores system setup information. CMOS memory stores information about the computer's floppy drives, hard disks, and RAM configuration.
Command-line option	Additional information that is entered at the DOS prompt that gives DOS specific instructions. For example, CPBACKUP DAILY instructs DOS to run Central Point Backup, and load the setup file DAILY.
Confidence test	A system test to ensure that Central Point Backup can make the fastest possible backups reliably on your computer.
CPU	An abbreviation for central processing unit, the focal point of all computing operations.
Default value	The "normal" value for a parameter or command. Default values are selected by the program or device until you specifically change them.

Device driver	Programs that are linked to the operating system when the computer is booted. These programs contain information to communicate with a device such as a mouse, printer, or video card. You add new device drivers to your CONFIG.SYS file.
Directory attributes	Each individual directory on a network has its own set of attributes, which determine what a user can do with the directory. You must have access control rights to change a directory's attributes.
DMA	Direct memory access. Devices in your PC, such as hard and floppy drives, can transfer data to memory without CPU involvement, using DMA channels. This aids in rapid data transfer.
EISA	Extended industry standard architecture. This refers to the 32-bit bus architecture developed by Compaq and others, and provides a significant improvement in data transfers between devices.
ECC	Error correction code. If your backup media gets damaged, the error correction code can be used to help recover the data. This is especially crucial for tapes.
File filters	A specification that lets you restrict the range of files selected, displayed, or acted upon. You can use DOS wildcard characters (? *), extensions, attributes, or dates to restrict file selection in Central Point Backup.
File server	This is the main computer for the entire network. It performs all the organizational and control functions needed to run NetWare. A file server can be a 286 or 386-class computer.
Floppy disk controller	The hardware card that controls the floppy disk drive. Some floppy controllers can also control a tape drive.
Gigabyte	Approximately one billion bytes.
History File	A history file for each backup you make is written to the backup disk or tape when the backup is complete. When Save History is on, the history file is also automatically written to the hard disk. This history file contains, among other things, the list of files that were backed up and the date and time they were backed up. All history files have a .DIR extension.

Host adapter	Refers to a SCSI card.
IDE (integrated drive electronics)	An interface used to connect a hard drive subsystem to the motherboard of your PC.
I/O Address	A location in memory through which an I/O device "talks" to the CPU.
Interrupt	A request for attention signal sent by software or hardware to the CPU that makes the CPU suspend an operation and transfer control to a special interrupt handler.
Interrupt level	The number assigned to software or hardware that defines its priority in the interrupt process.
IRQ	Stands for interrupt request. This is the signal to the CPU from a hardware device that initiates the interrupt. The IRQs are built into the hardware with preassigned interrupt levels, some of which are changeable by the user.
ISA	Industry standard architecture refers to the 8- or 16-bit bus that is standard in AT-class machines.
LAN	Local area network, which consists of a system of interconnected computers that exchange information with a central server.
Logging a drive	The procedure that reads the disk's directory into memory. Central Point Backup displays a checkmark next to each logged drive in the Backup From list.
Megabyte	Approximately one million bytes (actually 1,048,576).
Micro-Channel	The 32-bit bus architecture developed by IBM and introduced with the PS/2 models. Micro-channel PCs require special micro-channel boards.
NetWare	The Novell network software for 286 and 386-based servers.
Parameter	A parameter is a range of acceptable values within which a specific device or operation can function.
Proprietary format	A format that is specific to a product. Central Point Backup can use a proprietary format for floppy disks and tapes. The advantage is more data can be written to the disk or tape.

QIC-02	A specific Quarter-Inch Cartridge standard of tape drive. Although the tape itself is quarter inch, the cartridge housing it is much larger than the more popular QIC-40/80 standard.
QIC-40/80	A specific Quarter-Inch Cartridge standard of tape drive. Although the tape itself is quarter inch, the cartridge housing it is much smaller than the QIC-02 cartridges.
Raster font	Fonts such as Courier, Helvetica, and Times Roman that are defined by digital representations of the bit patterns of the characters. Font files usually contain several different sizes for each typeface.
Retension	In order for a tape to function optimally, it needs to maintain an even tension along its length. Retensioning fast forwards, then rewinds the tape and sets the tension correctly. This process may take a few minutes, depending on the length of the tape.
Root directory	The main directory on each volume. It is created by DOS and is the foundation, or root, from which all subdirectories grow. The symbol for the root directory is a backslash (\), without any words to the right of it. For example, C:\ is the root of drive C.
SCSI	Small computer system interface. A protocol for transmitting data between your computer's memory and a peripheral device.
Server volume	A volume is a region on a hard disk that is separated from other regions and can be individually addressed. This enables you to divide a server hard disk into several different logical drives. Each volume is treated like a separate hard disk with its own directory structure.
True Type font (vector)	Fonts such as Modern, Script, and Roman that are defined by points that are connected to form the letters and can be scaled to different sizes.
Trustee rights	Trustee rights are assigned to every file on a Novell network and indicate such things as who owns the file and who can modify it. The trustee rights are contained in the DIRSTAMP.SYS files at the root of each network volume.

Volume

A floppy disk, hard disk, Bernoulli cartridge, optical disk, tape cartridge, or other device that stores data.

**Volume Tape
Catalog (VTC)**

A .VTC file is written to your hard disk during the backup process for each SCSI tape used. Every time you use a SCSI tape, the .VTC file on your hard disk is updated, or synchronized, with the latest .VTC file on the tape.

Wildcards

The ? and * are characters that DOS uses to specify one or more files whose names are alike in some way. The question mark (?) represents one character in a path or file name, and the asterisk (*) can represent up to eight characters in a file name or three in an extension.

Workstation

A personal computer that is connected to a network. Although a user can run applications at their workstation, its resources are generally not available to other users on the network.

Part 3

Central Point Commute

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About Central Point Commute

With computers as with people, good communication saves you time and money. Central Point Commute keeps you in touch with other PCs, whether to just transfer files or to run applications and gather information. With Commute, you can use a PC thousands of miles away as if it were right there in your office.

What Commute Does

Commute allows you to use another computer's applications and files while at your computer, by modem, LAN (local area network), or a direct cable connection. With Commute, you can do all of this:

- **Work at home or on the road.** From your home computer or laptop, you can connect to your office computer by modem, giving you access to your Email, files, printer, or network server as if you were there.
- **Transfer files easily.** On a LAN, transfer files directly to another PC's drive without using the server. With a modem, you don't have to worry about details like transfer protocols—Commute takes care of all that. Or you can use a simple script for unattended file transfer at off-peak hours.
- **Operate Windows remotely.** Run Windows applications remotely over a Novell or NetBIOS network or a modem, with full mouse support.

Overview of How to Use Commute

To start a Commute session and use one PC to control another, follow these basic steps:

1. Provide a way to connect the two PCs (network, modem, or cable).
2. Install Commute on each PC.
3. Wait for a call at one PC. This loads Commute memory-resident.
4. At the second PC, call and take control of the first PC.
5. Work as though you were at the other PC.

To connect the two PCs and install Commute, see the *Quick Start* chapter. To wait for a call, see the *Starting a Session—Waiting for a Call* chapter. To call and take control of a PC, see the *Starting a Session—Calling a PC* chapter.

1

Quick Start

This chapter takes you quickly through a sample session with Central Point Commute. If you feel confident about using a new program or have used Commute before, you can start here. Otherwise, you may want to look through the more complete instructions in *Part 2 Using Commute* first. If you haven't installed Commute, see *Part 1 Getting Started* in Volume 1.

Here's what you'll find in this chapter:

- **Connecting the PCs** explains how to set up two PCs so they can Commute with each other.
- **Configuring Commute** explains how to set up Commute after installing it.
- **A Sample Commute Session** shows a typical Commute session where you wait for a call, make a call, transfer files, and end the session.
- **For More Information** directs you to other chapters in this manual to further explanations of Commute features.

Connecting the PCs

Before starting Commute, decide how the two computers will communicate with each other: by modem, by NetWare or NetBIOS LAN (local area network), or by a null-modem cable.

Using a LAN connection

- Log on to the LAN from each PC before starting Commute.

Using a Modem Connection

1. Install a modem on each PC, following the instructions in your modem manual.
Make sure the modem is connected to the phone line and to a serial port (COM port) on each computer.
2. Turn on the modem's power.

Using a Direct Connection

- ▶ Connect the serial ports of the two computers with a full null-modem cable.

For more information on using a direct cable connection, see “Changing the Connection Type” in the *Changing Commute Options* chapter.

Configuring Commute

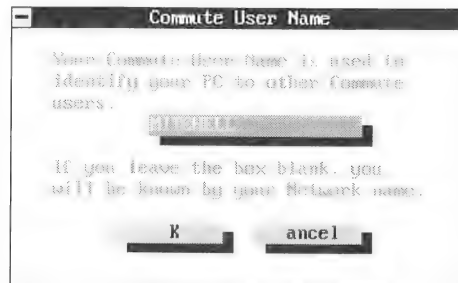
These procedures assume that Commute is already installed on the two PCs that you want to connect in a Commute session.

1. From DOS, type

COMMUTE

Press for online help at any time.

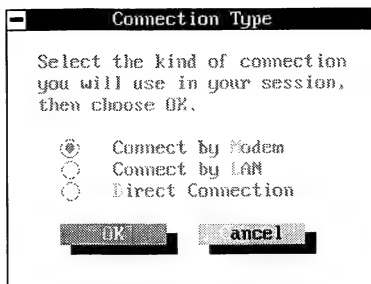
When you start Commute for the first time, you'll be asked for some configuration information. First, the Commute User Name dialog box appears.



2. Enter a name, then choose **OK**.

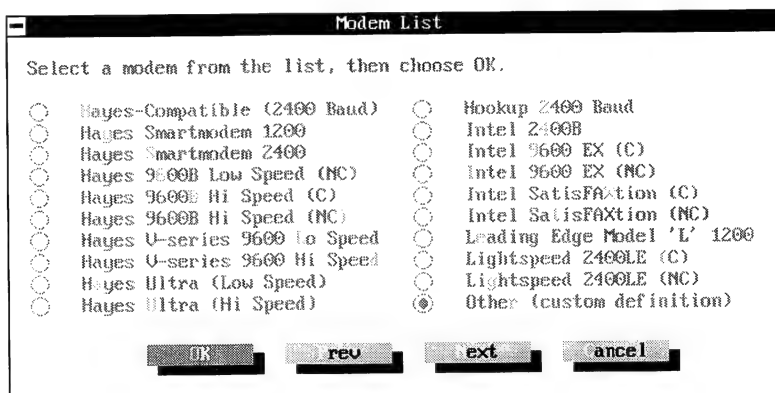
Your Commute user name identifies you to other Commute users. If you're logged on to the LAN, your login name appears as the default. You can use that name or change it.

The Connection Type dialog box appears.



3. Select the type of connection you'll use most often, then choose **OK**.
No matter what you select, you can change the connection type later.

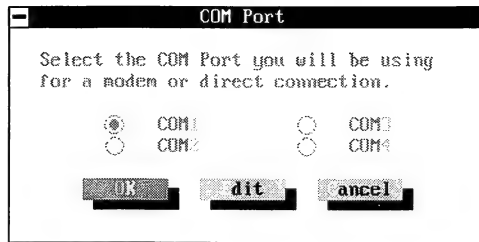
If You Select This	Then
Connect by Modem	The Modem List dialog box appears. Go to step 4.
Connect by LAN	Your configuration is complete. See the "A Sample Commute Session" section following.
Direct Connection	The COM Port dialog box appears. Go to step 5.



4. Select the type of modem you are using, then choose **OK**.
You can choose **Next** or **Prev** to see the rest of the Modem List.

If the brand name of your modem is not listed, select the Hayes-compatible (2400 baud) option. After the rest of your configuration is complete, choose **Baud Rate** from the Configure menu and select your modem's speed.

After you select a modem, the COM Port dialog box appears.



5. Select the COM port your modem (or null-modem cable) is attached to, then choose **OK**.

If your modem is attached to COM3 or COM4 and your computer is not a PS/2, you must modify the IRQ (Interrupt Request Line) and base address settings for the COM port. See "Changing the COM Port Setting" in the *Changing Commute Options* chapter.

Commute is now configured for your system. To change any of these settings at a later time, see the *Changing Commute Options* chapter.

A Sample Commute Session

The following sample shows you how to call and take control of a PC and how to transfer a file from the other PC to your PC. This example assumes you have already installed and configured Commute on each PC. For more details on the procedures in this section, see the *Starting a Session—Waiting for a Call* and *Starting a Session—Calling a PC* chapters.

Starting Commute

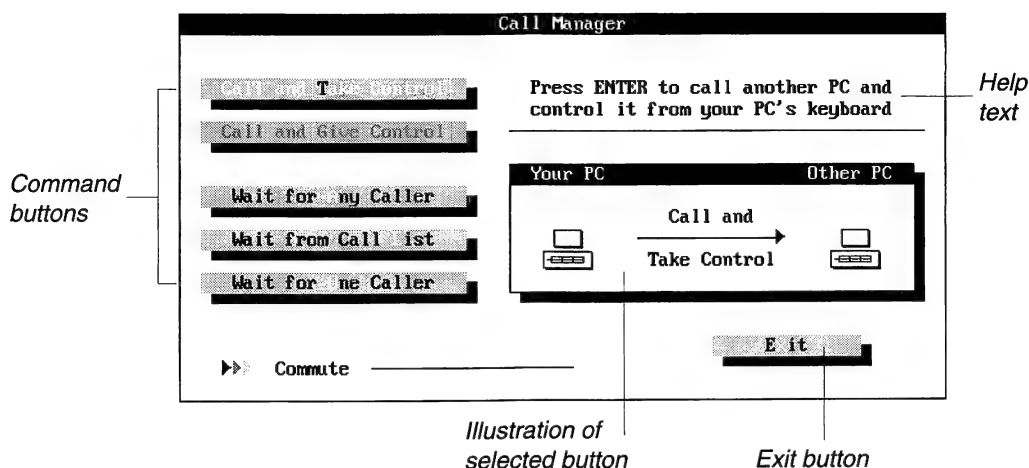
- Start Commute from DOS by typing

COMMUTE

The Call Manager window appears. If a dialog box prompts you for configuration information, see the "Configuring Commute" section earlier in this manual.

The Call Manager Window

The picture on the right-hand side of the Call Manager window illustrates the selected command button. For example, if you select the **Call and Take Control** button, the illustration shows your PC calling the other PC to take control of it.



Function Keys

The following function keys are available in Commute:

Function Key	Description
F1	Help
F3	Exit
F8	Maximize
F10	Menu

Waiting for a Call

First, you need to set up one PC to wait for a call. Commute will be loaded into memory and wait for incoming calls. (If you want to start a Commute session by LAN, log on to a network server before starting Commute.) After you set up one PC to wait for a call, you can call the other PC and take control of it from your PC.

1. Choose **Wait for Any Caller** from the Call Manager window.

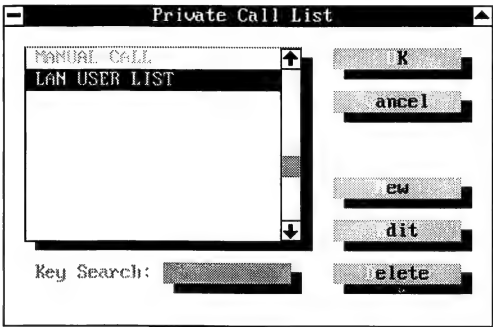
The Connection Type dialog box appears. The current connection type is what you chose when you configured Commute. Select the correct type if necessary.

- 2. Choose **OK**.
Commute returns to DOS so the PC user can keep working while waiting for a call. Because Commute uses only a portion of the computer's memory, the person at the other PC can use it as usual—running a word-processing program or spreadsheet, for example.

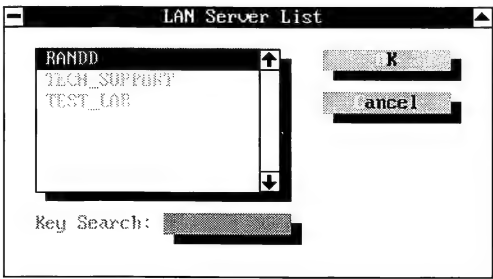
Calling and Taking Control of the Other PC (LAN)

Now that the other PC is waiting for a call, you can call and take control of it from your PC. If you are using another kind of connection, see the next section, "Calling and Taking Control of the Other PC (Modem or Direct)."

- 1. Choose **Call and Take Control** from the Call Manager window.
The Private Call List appears. It holds the information on frequently called PCs, like a phone directory.

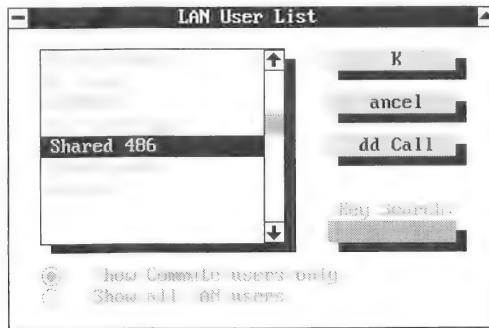


- 2. Select **LAN USER LIST**, then choose **OK**.
The LAN Server List dialog box appears, showing all of the network servers available to you.



3. Select the server that the other PC is logged on to, then choose **OK**.

The LAN User list appears, showing Commute users who are logged on to the LAN and waiting for a call. This list displays Commute user names.



4. Select the Commute user you want to call, then choose **OK**.

Commute calls that PC, and a dialog box shows the status of the connection process. After connecting, your PC shows whatever is on the other PC's screen.

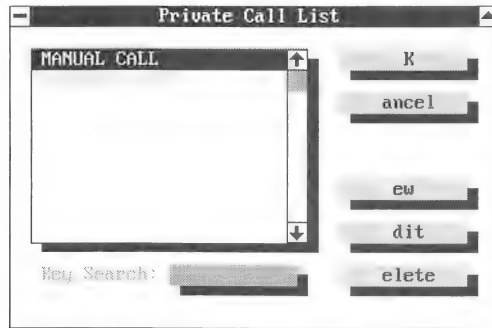
Now that you've taken control of the other PC, all its resources are available to you (its drives and printer, for example), and your keystrokes or mouse actions control the other PC. You can run the other PC's spreadsheet program, for example.

Calling and Taking Control of the Other PC (Modem or Direct)

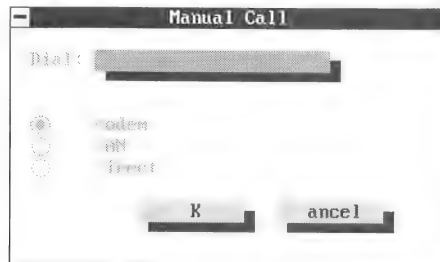
Now that the other PC is waiting for a call, you can call and take control of it from your PC. If you are using a LAN connection, see the previous section, "Calling and Taking Control of the Other PC (LAN)."

1. Choose **Call and Take Control** from the Call Manager window.

The Private Call List appears. It holds information on frequently called PCs, like a phone directory.



2. Select **MANUAL CALL**, then choose **OK**.
The Manual Call dialog box appears.



3. Enter the phone number of the other PC's modem in the Dial text box.
If you dial an extra number to get an outside line, use a comma to pause: 9,1-415-555-0984. To call a directly connected PC, you don't need to enter a number.
4. Select **Modem** for a modem call or **Direct** for a direct connection call, then choose **OK**.
Commute makes the call, and a dialog box shows the status of the connection process. After connecting, your home PC shows whatever is on the other PC's screen.

Now that you've taken control of the other PC, all its resources are available to you (its drives and printer, for example), and your keystrokes or mouse actions control the other PC. You can also run its applications, even if your PC does not have them.

Opening the Session Manager

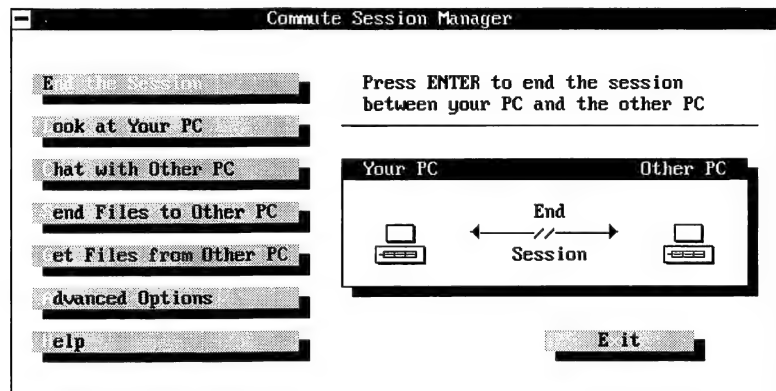
While you're in a Commute session, the Session Manager provides a way of performing operations such as transferring files.

- Press **[Alt] [R-Shift]**.

This is the default hotkey combination. Hold down **[Alt]** while pressing the right-hand **[Shift]** key. If nothing happens, see "Changing the Hotkey" in the *Changing Commute Options* chapter.

The Session Manager window appears.

- Press **[F1]** for online help at any time.



Transferring a File to Your PC

Suppose you need a file that's on the other PC. You can transfer the file from the other PC to yours, using the Session Manager.

1. Press **[Alt] [R-Shift]** to see the Session Manager window.
2. Choose **Get Files from Other PC**.

A dialog box appears, displaying file transfer options. To use these options and other features, see the *Transferring Files* chapter.

3. Enter the path and file name of the file that you want to receive from the other PC.

4. Enter the path on your PC where you want the file to be copied, then choose **OK**.

For example, enter C:\NEW\TSR to transfer the files to your PC's \NEW\TSR directory. A dialog box shows the progress of the file transfer.

Ending the Session

When you're through transferring files or running programs on the other PC, open the Session Manager to break the connection between the two PCs and end the session.

1. Press **(Alt)(R-Shift)** to see the Session Manager window.
2. Choose **End the Session** from the Session Manager window.

Your PC is disconnected from the other PC and the session ends. The other PC continues to wait for calls until you return to it and unload Commute from memory.
3. Choose **Exit** from the Call Manager or from the File menu to exit to DOS.

Unloading Commute from Memory

1. At the PC you took control of, press **(Alt)(R-Shift)** to open Commute, which is still memory-resident.

The Call Manager window appears. If a different window appears instead, you must first end the session.
2. Choose **Unload from Memory** from the File menu.

The PC stops waiting for calls, and Commute is unloaded from memory along with any memory-resident programs loaded after it.

For More Information

For more detailed descriptions of how to start a session and what you can do during a session, see these chapter: *Starting a Session—Waiting for a Call*, *Starting a Session—Calling a PC*, *Working in a Commute Session*, and *Transferring Files*.

Starting a Session—Waiting for a Call

In order for other PC users to take control of your PC with Commute, you must give them permission. You give other PC users permission by telling them your password (if you've defined one) and choosing to wait for a call. When they call your PC, you can begin a Commute session.

Here's what you'll find in this chapter:

- **Using the Give Control List** shows how to keep track of other Commute users who may take control of your PC and assign individual security settings.
- **Waiting for a Call** explains the different ways of loading Commute memory-resident to let other PCs call and take control of your PC.
- **Answering a Call** tells what happens when another Commute user calls you.
- **After Giving Control** shows what options are available during a session when you have given control of your PC to someone else.

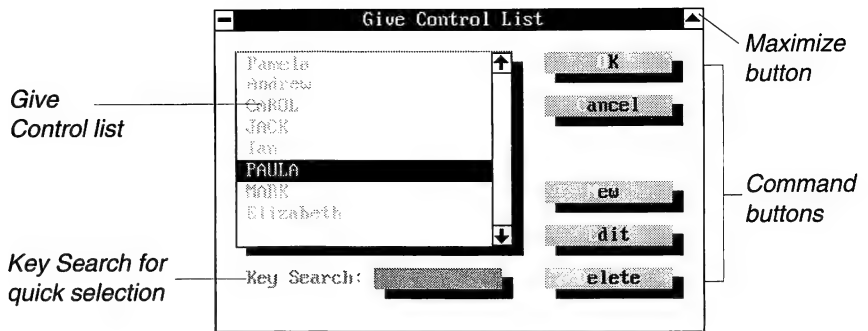
Using the Give Control List

If you read the *Quick Start* chapter, you learned that you can accept a call from any PC by choosing Wait for Any Caller. By using the Give Control list, you can limit access to your PC to specific Commute users with specific passwords.

Opening the Give Control List

- Choose **Give Control List** from the File menu.

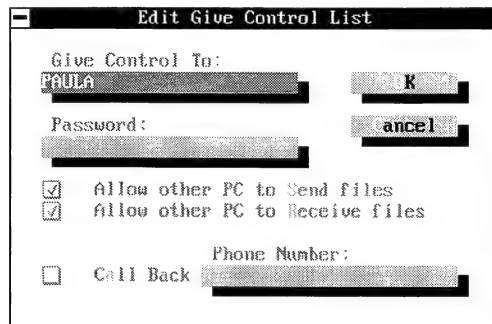
The Give Control list appears. With this window open, you can add, delete, or edit entries in the list. You can see more details by pressing **F8** or clicking the Maximize button in the upper-right corner of the window.



Adding an Entry

1. Choose **New**.

The Edit Give Control List dialog box appears.



2. Enter information about the Commute user you want to give control to.

Give Control to: Enter the Commute user name of the person you'll allow to control your PC. You can see the Commute user name by starting Commute and choosing Commute User Name from the Configure menu on that PC.

Password: If you want to require a password, type the password that the other user must enter to take control of your PC.

NOTE This password overrides the default password that you can specify in the Security Settings dialog box.

Allow other PC to Send files: Allows the controlling PC to send files to your PC during a session.

Allow other PC to Receive files: Allows the controlling PC to receive files from your PC during a session.

Call Back: Lets you make sure you have the right caller if you're using a modem. When the user calls, Commute hangs up and immediately calls back, using the Call Back Number in this entry. This option provides extra security for your PC and lets you control who pays for a long-distance call. When you use Call Back, you pay for the call. If the Call Back option is selected, enter the other PC's phone number in the Phone Number text box.

These settings are individual security features that you can set separately for each entry in the Give Control list. For example, you may want to give file transfer privileges to some users but not to others. For information on general security settings, see "Changing Security Settings" in the *Changing Commute Options* chapter.

3. Choose **OK**.

Editing an Entry

1. Select the entry you want to edit.

To select an entry quickly, type the first few letters of the name. The letters appear in the Key Search box as they match an entry in the list.

2. Choose **Edit**.
3. Change the information about that user.
4. Choose **OK**.

Deleting an Entry

1. Select the entry you want to delete.
2. Choose **Delete**.

The selected entry is deleted from the list.

NOTE *Wait for Any Caller ignores individual user security settings. To use the call-back feature, for example, you must select the call-back option in the Give Control list for the PC that is calling. Then choose Wait from List, or choose Wait for One Caller and select the PC that is calling.*

Waiting for a Call

Before anyone calls, you need to load Commute memory-resident and tell your computer to wait for a call. Commute does this with the Wait for a Call commands.

You can be as specific as you want about who can call: you can have Commute accept a call from any PC, from any PC in your Give Control list, or only from a single PC in your Give Control list.

If you run Commute from within another application—for example, PC Tools Desktop, a menuing application, or Windows—then you can make a call but cannot wait for a call. When you wait for a call, you must have started Commute from the DOS prompt or in your AUTOEXEC.BAT file.

Waiting for a Call from Any Commute User

Although you can set individual security settings for each Commute user that you give control of your PC to, Commute ignores these settings if you choose Wait for Any Caller.

1. Choose **Wait for Any Caller**.

The Connection Type dialog box appears. Your current connection type setting is already selected. If the three Wait for a Call buttons are not available, then your PC is already memory-resident, waiting for a call.

2. Select the type of connection you're using, then choose **OK**.

Commute is loaded into memory to wait for a call and returns to DOS so you can use your PC while you're waiting. Commute will accept a call from anyone who calls in. The other caller needs to know your phone number (using a modem) or your Commute user name (on a LAN) and your default password (if it is required).

TIP You can have your PC always waiting for any call by adding this line to your AUTOEXEC.BAT file:

```
COMMUTE /R
```

Whenever you start or restart your computer, Commute is loaded into memory as if you had chosen Wait for Any Caller.

If you use a memory manager, you do not need to use the load high command to load Commute resident in high memory. Commute automatically uses available high memory when resident.

Waiting for a Call from Any User in Your Give Control List

1. Choose **Wait from Call List**.

The Connection Type dialog box appears. Your current connection type setting is already selected.

2. Select the type of connection you're using, then choose **OK**.

Commute is loaded into memory and returns to DOS so you can use your PC while you're waiting. Commute accepts a call from anyone in your Give Control list.

TIP You can have your PC always waiting for a call from users in your Give Control list by adding this line to your AUTOEXEC.BAT file:

```
COMMUTE /RL
```

Whenever you start or restart your computer, Commute is loaded into memory as if you had chosen Wait from Call List in the Call Manager.

Waiting for a Call from a Specific User

1. Choose **Wait for One Caller**.

The Give Control List appears.

2. Select an entry in the list, then choose **OK**.

The Connection Type dialog box appears. Your current connection type setting is already selected.

3. Select the type of connection you're using, then choose **OK**.

Commute is loaded into memory and returns to DOS so you can use your PC while you're waiting. Commute will accept a call only from the PC you selected.

Ignoring Calls

When you don't want anyone to take control of your PC, you can either ignore calls temporarily or stop waiting for a call by unloading Commute from memory.

1. Press the hotkey (normally **Alt** **R-Shift**) if you're not already in Commute.
2. Choose **Ignore All Calls** from the File menu.

A check mark appears next to the command. As long as Ignore All Calls is selected, Commute rejects all calls. Because Commute is still in memory, you can press the hotkey at any time to enter Commute, turn off this option, and wait for a caller again.

This command is not available unless Commute is memory-resident, waiting for a call.

Unloading Commute from Memory

1. Press the hotkey (normally **Alt** **R-Shift**) if you're not in Commute.
2. Choose **Unload from Memory** from the File menu.

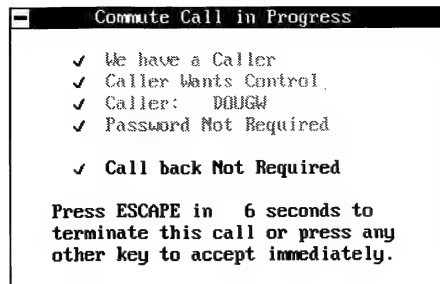
Your PC stops waiting for a call and Commute is unloaded from memory, along with any other memory-resident programs loaded after Commute. The KILL.EXE program also unloads Commute from memory.

This command is not available unless Commute is memory-resident, waiting for a call.

NOTE When you press the hotkey to enter Commute, the Wait for a Call buttons are not available because Commute is already memory-resident, waiting for a call.

Answering a Call

When someone calls to take control of your PC, the Call in Progress dialog box appears over the top of the application you are using. For example, if you are working on a spreadsheet in Lotus 1-2-3, this dialog box appears over the spreadsheet to let you know who is calling. After you have accepted the call, your PC returns to the state it was in before the call came.



Accepting a Call

- ▶ Press any key except the Escape key.
If you do nothing, after 10 seconds the connection is complete and the other PC takes control of your PC.

Rejecting a Call

- ▶ Press **[Esc]** when the caller is announced.
You may be in the middle of creating an illustration, for example, and don't want to give up control at the moment. You have 10 seconds to reject the call.

After Giving Control

After you give control of your PC to another PC user, you do not have to take any action—you can just watch what the other person is doing on your PC. However, there are some things you can do during a session if you want. During a Commute session, each keyboard and mouse is normally active, allowing both you and the other user to enter commands, for example, or to collaborate on writing a memo. You can also chat with the other user or end the session.

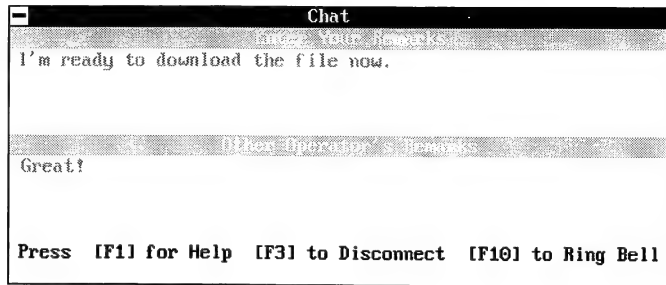
NOTE One thing you should not do during a Commute session with a modem connection is start a program that uses the same COM port. Because Commute uses the COM port when you call by modem, using that port with a different program disconnects you from the other PC.

Chatting with the Other PC

When you want to communicate directly with the user who has taken control of your PC, you can use the Chat window to type messages back and forth.

1. Press the hotkey (normally **Alt** **R-Shift**).

The Chat window appears.



2. Type your comments.

They appear immediately on both PC screens.

3. When the conversation is over, close the Chat window (press **Esc** or click the close box).

The window closes, returning you to the Commute session.

Ending a Session after Giving Control

Normally, the PC that takes control of your PC ends a session. If you want to end a session after giving control, however, you can do so from the Chat window.

1. Press the hotkey (normally **Alt** **R-Shift**).

The Chat window appears.

2. Press **F3**.

The session ends and the other PC is disconnected from your PC.

Commute remains in memory, waiting for a call, until you unload it from memory. To unload Commute from memory, see "Unloading Commute from Memory" earlier in this chapter.

Starting a Session—Calling a PC

A Commute session always begins by one PC calling another PC that is waiting for a call. This chapter describes how to make a call and set up a Private Call list.

Here's what you'll find in this chapter:

- **Using the Private Call List** explains how to keep track of other PCs that you take control of, using the Private Call list.
- **Making a Call** explains how to call and take control of another PC.
- **Giving Your Name and Password** explains how to enter your Commute user name and password if the other PC's security settings require them.
- **Using the Call-and-Give-Control Feature** explains how to use Commute's memory-resident feature to make a call where you give control to the other PC. (Normally, you take control when you make a call.)

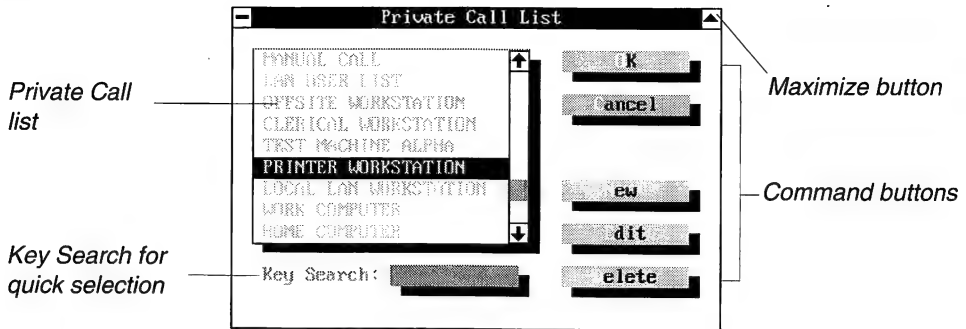
Using the Private Call List

To start a session, you can call another PC directly by selecting Manual Call from the Private Call list. (See "Calling and Taking Control of the Other PC (Modem or Direct)" in the *Quick Start* chapter.) This feature requires you to enter a phone number or Commute user name each time you call. Because you may be making the same calls repeatedly, it's helpful to keep a call list containing phone numbers and other information for frequently called PCs. The Private Call list is a convenient list of PCs that you can take control of.

Adding an Entry to the Private Call List

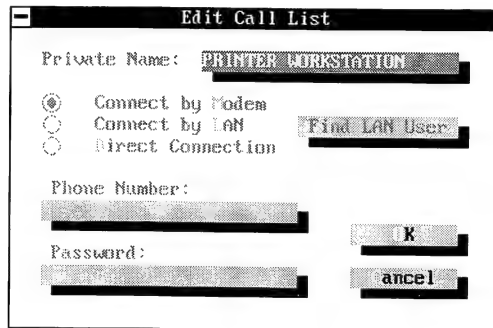
1. Choose **Private Call List** from the File menu.

You can also choose **Call and Take Control** from the Call Manager window. The Private Call list appears. You can see more information about each entry by pressing **F8** or clicking the Maximize button in the upper-right corner of the window.



2. Choose **New**.

The Edit Call List dialog box appears.



3. Enter information about the PC you want to take control of, then choose **OK**.

Private Name: Type the name of the user whose PC you'll be taking control of. This is for your own reference only and doesn't have to match anything.

Connect by . . . : Select the connection type: modem, LAN, or direct connection.

Phone Number: This label appears when you select the **Connect by Modem** option. Enter the phone number of the other PC. If you need to dial a number to get an outside line, use a comma to pause: 9,1-503-555-1572. Hyphens and parentheses are ignored, so include them if you want.

NOTE Because the phone number is sent directly to the modem, you may include special characters. For example, you can specify pulse dial rather than tone dial. See your modem manual for details.

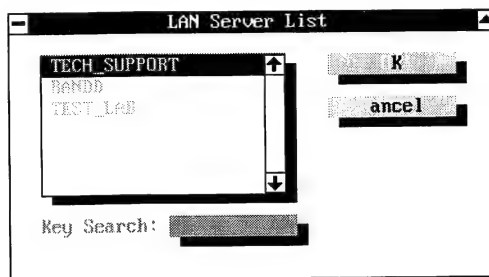
Commute User Name: This label appears instead of “Phone Number” if you select the Connect by LAN option. Enter the Commute user name of the PC that you want to call. You can call any Commute user on any LAN that you have access to. If you select the Connect by LAN option, you can also use the Find LAN User button to locate the PC you want to take control of.

Password: Type the password the other user gives to you. If the other PC doesn’t require a password, you can leave this box blank.

If you are using a modem or direct connection, you can skip to step 7 at the end of this procedure.

4. Choose **Find LAN User**.

The LAN server list appears, showing all of the network servers available to you.

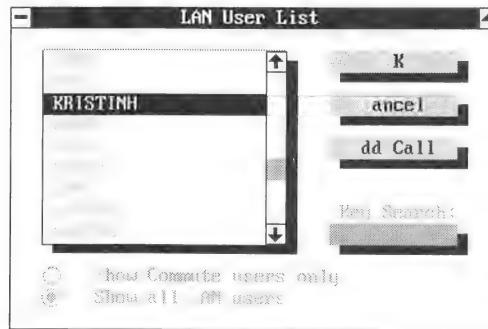


To see additional server information (network number and node address), click the Maximize button or press **(F8)**.

To quickly select a server, type the first few letters of a server name. The letters appear in the Key Search box as they match an entry in the list.

5. Select the server that the other PC is attached to, then choose **OK**.

The LAN User list appears, showing Commute users who are logged on to the LAN and waiting for a call. This list displays Commute user names:



NOTE If your PC is not attached to the server you select, Commute prompts you for your login name and password. You remain logged on only while using the LAN User list.

Select **Show all LAN users** to see all users who have accounts on this server, whether or not they are logged on. Click the Maximize button or press **F8** to show the network and node addresses of users who are logged on to the network. To quickly select a Commute user, type the first few letters of the name. The letters appear in the Key Search box as they match an entry in the list.

6. Select a Commute user, then choose **OK**.

The Edit Call List dialog box reappears. Commute has automatically entered an entry name and the Commute user name. If the Commute user name is LISAANN, the entry name is "User LISAANN."

7. Choose **OK** to close the Edit Call List dialog box, then choose **OK** again to close the Private Call list.

Editing an Entry

1. Select an entry in the Private Call list.

To quickly select an entry, type the first few letters of the name. The letters appear in the Key Search box as they match an entry in the list.

2. Choose **Edit**.

The Edit Call List dialog box appears.

3. Change the information about that user.
4. Choose **OK**.

Deleting an Entry

1. Open the Private Call list and select an entry.
2. Choose **Delete**.

The selected entry is deleted from the list.

Making a Call

This section explains how to call and take control of another PC. To use the Call and Give Control command, see “Using the Call-and-Give-Control Feature” later in this chapter.

1. Make sure the other PC is waiting for a call.
See the *Starting a Session—Waiting for a Call* chapter.

2. Start Commute from DOS by typing

COMMUTE

The Call Manager window appears.

3. Choose **Call and Take Control**.

The Private Call list appears. You can edit the list or select an entry to call.

4. Select an entry from the list, then choose **OK**.

If you select a user from the list, Commute makes the call and the Call in Progress dialog box appears (go to step 7).

If you select **MANUAL CALL**, a dialog box appears. Select a connection type, enter a phone number or Commute user name, and choose **OK** to make the call.

If you select **LAN USER LIST**, you can select from a list of Commute users waiting for a call on the LAN (see steps 5–7).

5. To see a list of current users on the LAN, select **LAN USER LIST**, then choose **OK**.

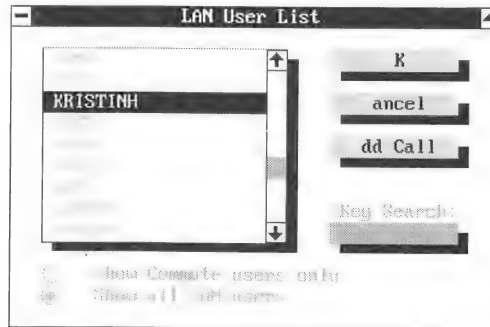
The LAN server list appears, showing all of the network servers available to you. If you are not attached to the server you select, Commute prompts you for your login name and password. You will remain logged on only while using the LAN User list.

6. Select the server that the other PC is attached to, then choose **OK**.

The LAN User list appears, showing Commute users who are logged on to the LAN and waiting for a call.

You can call a user on the list or choose **Add Call** to create a new Private Call list entry for the selected Commute user.

This list displays Commute user names:



NOTE You may select **Show all LAN users** to see all users who have accounts on this server. Click the **Maximize** button or press **(F8)** to show the network and node addresses of users who are logged on to the network.

7. Select a Commute user, then choose **OK**.

Commute makes the connection and announces your call at the other PC. A dialog box appears, showing you the status of the connection process. After Commute makes the connection, whatever is on the other PC's screen appears on your screen, and your mouse and keyboard actions are accepted as if you were at the other PC.

If Commute cannot make a connection, it returns to the Private Call list. See the *Troubleshooting Commute* chapter if you cannot make a connection to start a Commute session.

Calling to Take Control when Commute is Resident

You can also use the Call and Take Control command when your PC is waiting for a call. This way you can use the hotkey to start Commute and choose Call and Take Control or Call and Give Control.

For more information about calling and giving control, see "Using the Call-and-Give-Control Feature" later in this chapter.

1. Make sure the other PC is waiting for a call.

See the *Starting a Session—Waiting for a Call* chapter.

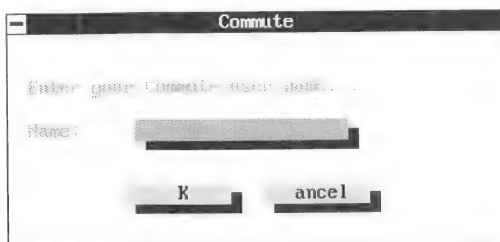
2. Start Commute on your PC, then choose **Wait for Any Caller**.
Commute loads itself into memory and returns to DOS.
3. Press the hotkey (normally **Alt** **R-Shift**) or type `COMMUTE` **Enter** from DOS to return to Commute.
The Call Manager window appears.
4. Choose **Call and Take Control**.
The Private Call list appears.
5. Select a PC from the list, then choose **OK**.
Commute places the call and tells you the session is about to begin. The other PC is then under your control, as if you were at its keyboard.

Giving Your Name and Password

Depending on the security settings of the PC you are calling, you may be required to manually enter your Commute user name or password in a dialog box after you have made your call. The other PC stores your name and password in the Give Control list, and stores the default password using the Security command from the Configure menu.

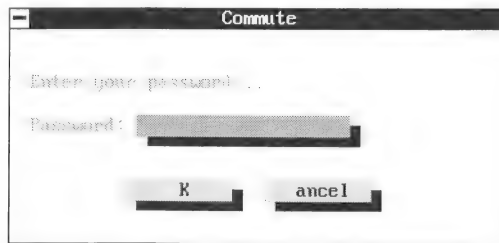
Entering Your Name

- ▶ Enter your Commute user name, then choose **OK**.



Entering a Password

- ▶ Enter the password for the PC you're taking control of, then choose **OK**.



If your name or password is not correct after the third attempt, your call is rejected.

Using the Call-and-Give-Control Feature

Normally, the person who calls the other PC takes control of it. You can also set up the PCs so that one PC calls to *give* control. Suppose you call your corporate support technician, and the technician needs to take control of your PC to solve a problem. In this case, you can call and give control of your PC to the technician as soon as a problem comes up.

In order to call and give control of your PC to another PC user, you need to load Commute into memory. Then when you press the hotkey to open Commute, the Call and Give Control button is available in the Call Manager.

1. Make sure the other PC is waiting for a call.
See the *Starting a Session—Waiting for a Call* chapter for details.
2. Start Commute, then choose **Wait for Any Caller**.
Commute loads itself into memory and returns to DOS.
3. Press the hotkey (normally **Alt** **R-Shift**) to return to Commute.
The Call Manager window appears.
4. Choose **Call and Give Control**.
The Private Call list appears.
5. Select a PC from the list as you normally would, then choose **OK**.
Commute places the call and announces who is calling. If the call is accepted, a dialog box tells you the session is about to begin. The other PC user then takes control of your PC, using it as if at the keyboard with you.

Working in a Commute Session

After you take control of another PC in a Commute session, you can use the other PC as if you were there. You can also use the Session Manager to type messages to the other PC user, transfer files, use advanced options, or end the session. To read about file transfer features, see the next chapter, *Transferring Files*.

Here's what you'll find in this chapter:

- **Opening the Session Manager** explains how to use the hotkey to open the Session Manager window once you've started a Commute session.
- **Using the Session Manager** explains what commands are available in the Session Manager window and how to use them.
- **Using the Advanced Options** explains what commands are available in the Advanced Options window and how to use them.
- **Identifying the Screen** explains what to do if you're unsure whose PC screen is being displayed or whether you're in a session.

Opening the Session Manager

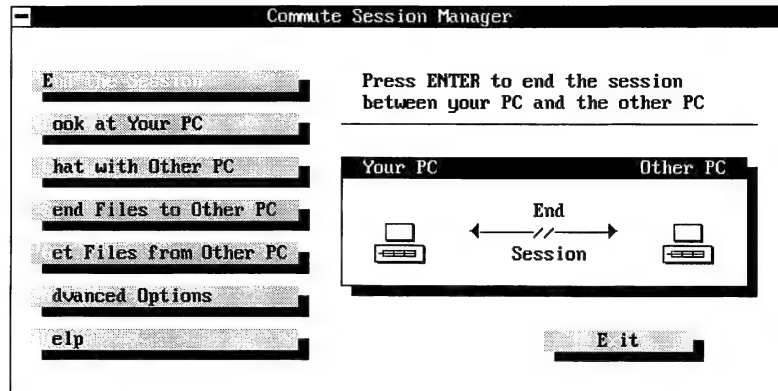
- Press the hotkey (normally **Alt** **(R-Shift)**).

The Session Manager appears on top of the current screen.

For information on changing the hotkey, see "Changing the Hotkey" in the *Changing Commute Options* chapter.

The Session Manager Window

From the Session Manager window, you can transfer files, talk to the other PC user, and change other options available during a session.



Getting Help While Using the Session Manager

- Press **F1** for online help at any time, or choose **Help** from the Session Manager window.

A help window about the selected item appears.

Using the Session Manager

From the Session Manager window, you can choose a variety of commands to use special Commute features during a session.

Returning to the Session

The Exit command closes the Session Manager and returns to the Commute session. If you want to break the connection and exit the Commute session, choose **End the Session** from the Session Manager.

- Choose **Exit** from the Session Manager.

You can also press **Esc** or **F3** to exit the Session Manager.

Ending the Session

When you end a Commute session, Commute breaks the connection between the two PCs, and your PC returns to the last thing you were doing before the session. If you're using a modem, Commute resets the modem.

1. Choose **End the Session** from the Session Manager.
A dialog box prompts you to confirm your choice.
2. Choose **OK**.

Looking at Your PC

After you've taken control of another PC in a Commute session, what you see on the screen comes from the other PC's screen. You can also temporarily return to using your own PC.

- ▶ Choose **Look at Your PC** from the Session Manager.

Your PC returns to whatever state it was in before you made a call. Normally, this will be the DOS prompt, unless you loaded Commute resident and used the hotkey to open it within another application before you called. In that case, Commute returns to your application.

Returning to the Commute Session after Looking at Your PC

- ▶ From DOS, type

EXIT Enter

- ▶ If you loaded Commute resident before taking control of the other PC, press the hotkey to return to the session.

Commute returns to the session, and your screen once again shows whatever is on the other PC's screen.

TIP You can use the *PROMPT* command in DOS to help keep track of which machine you are using. For example, if you add

PROMPT Home \$P\$G Enter

to your *AUTOEXEC.BAT* file, you will see `Home C:\>` at the DOS prompt when using your home PC. You can add the same command to your office PC's *AUTOEXEC.BAT* file (replacing *Home* with *Office*), so you always know which PC you're looking at during a session.

Chatting with the Other PC

You can communicate directly with the user on another PC during a Commute session by using the Chat window. Everything you type appears in the Chat window on both PC screens.

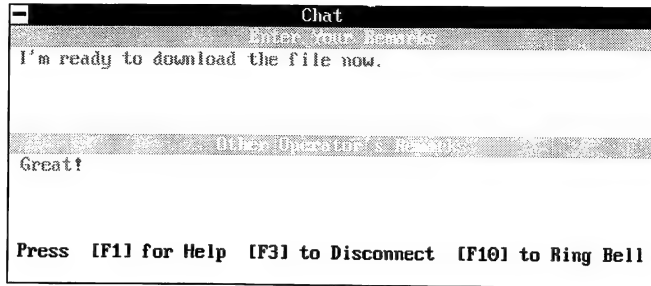
If you're controlling the other PC, the Chat with Other PC command is in the Session Manager. If you've given control to another PC, pressing the hotkey brings up the Chat window directly. This way, either PC can start a chat.

1. Press the hotkey (normally Alt R-Shift).

The Session Manager appears.

2. Choose **Chat with Other PC** from the Session Manager.

The Chat window appears. (If you've given control, the Chat window appears directly when you press the hotkey.)



3. Type your comments.
They appear immediately on both PC screens.
4. When the conversation is over, close the Chat window (press **[Esc]** or click the close box).

The window closes, returning you to the Commute session.

While the Chat window is open, you can end the session or ring a bell at the other PC to get the user's attention. For the PC user who has *given* control, the Chat window provides the only way to end a session without restarting the PC (by pressing **[Ctrl][Alt][Del]**).

Ring a Bell at the Other PC

- ▶ Press **[F10]** while the Chat window is open.

Ending a Commute Session from the Chat Window

- ▶ Press **[F3]** while the Chat window is open.

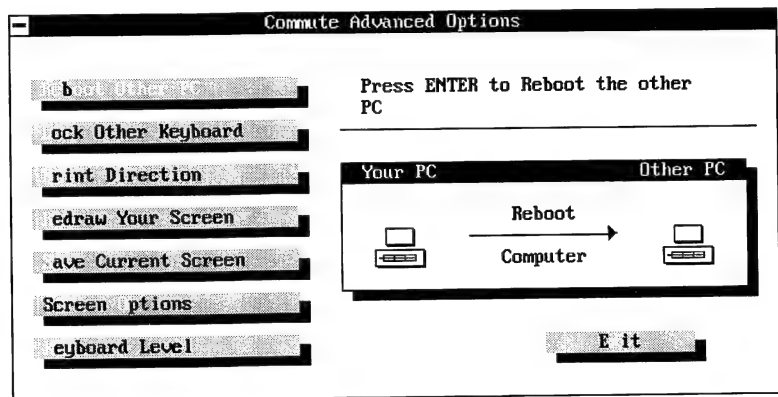
Sending Files to and from the Other PC

For information on sending and receiving files during a session, see the *Transferring Files* chapter.

Using the Advanced Options

The Session Manager offers a set of advanced options for use during a Commute session. Commute saves any changes you make to these settings in the COMMUTE.CFG file.

1. Press the hotkey (normally **Alt** **R-Shift**) to open the Session Manager.
The Session Manager appears.
2. Choose **Advanced Options** from the Session Manager.
The Advanced Options window appears.



Returning to the Session Manager Window

- Choose **Exit** or press **Esc**.
The Session Manager window appears.

Rebooting the Other PC

If for some reason the PC you have taken control of needs to be restarted, use the Reboot Other PC command.

1. Press the hotkey (normally **Alt** **R-Shift**) to open the Session Manager.
The Session Manager appears.
2. Choose **Advanced Options** from the Session Manager.

3. Choose **Reboot Other PC**.

The PC you're controlling restarts and then runs its AUTOEXEC.BAT file.

During a session, you can also press **Ctrl** **Alt** **Del** on your keyboard to reboot the PC you are controlling. Your own PC is not rebooted.

Locking the Other PC's Keyboard

When you're controlling the other PC, Commute normally accepts input from the mouse or keyboard at both PCs. If you don't want a passerby or the other PC user to interrupt what you're doing, you can lock the other PC's keyboard and mouse with this command. Then any actions from the other keyboard and mouse are ignored, the other PC user can no longer open the Chat window to communicate with you.

1. Press the hotkey (normally **Alt** **R-Shift**) to open the Session Manager.

The Session Manager appears.

2. Choose **Advanced Options** from the Session Manager.

3. Choose **Lock Other Keyboard**.

The keyboard of the PC you're controlling is locked, and the command changes to **Unlock Other Keyboard**. Repeat these steps to unlock the other PC's keyboard.

The Lock Other PC's Keyboard command may not be available. That means the other PC user has chosen in advance not to let anyone lock the keyboard. For more information, see "Changing Security Settings" in the *Changing Commute Options* chapter.

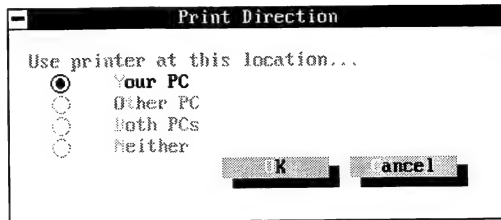
Changing the Print Direction

During a Commute session, you may want to use the printer at your PC, at the PC you're controlling, both, or neither. This command doesn't actually print; it determines only which printer will be used when you *do* print. If you print to your own printer during the session, the printer must be compatible with the selected printer driver for the software you're using on the other PC.

Like the Lock Other Keyboard command, the other user can limit this option in the other PC's security settings. In that case, this option may not be available in the Advanced Options window.

Choosing Which Printer to Use

1. Press the hotkey (normally **Alt** **R-Shift**) to open the Session Manager.
The Session Manager appears.
2. Choose **Advanced Options** from the Session Manager.
3. Choose **Print Direction**.
The Print Direction dialog box appears.



4. Select an option, then choose **OK**.
The next time you print something during the session, it is sent to the selected printer or printers.

Redrawing Your Screen

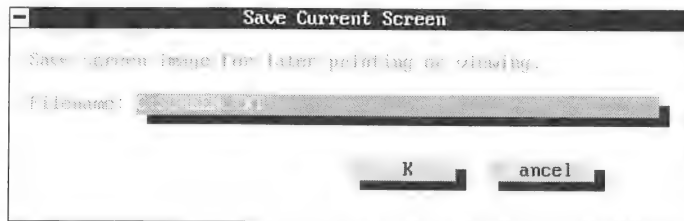
This command resends an image of the other PC's screen to your screen. Occasionally, line interference in a modem connection can put incorrect characters or pixels into a transmission. This command refreshes your screen.

1. Press the hotkey (normally **Alt** **R-Shift**) to open the Session Manager.
The Session Manager appears.
2. Choose **Advanced Options** from the Session Manager.
3. Choose **Redraw Your Screen**.
Commute sends your PC a fresh screen image from the PC you're controlling.

Saving the Screen

Use the Save Current Screen command to take a snapshot of the current screen in your Commute session. (The Session Manager itself is not shown in the snapshot.) The captured screen is saved as a text file that you can view with the TYPE command in DOS or with a word processor. Commute does not save graphics screens.

1. Press the hotkey (normally **Alt** **R-Shift**) to open the Session Manager.
The Session Manager appears.
2. Choose **Advanced Options** from the Session Manager.
3. Choose **Save Current Screen**.

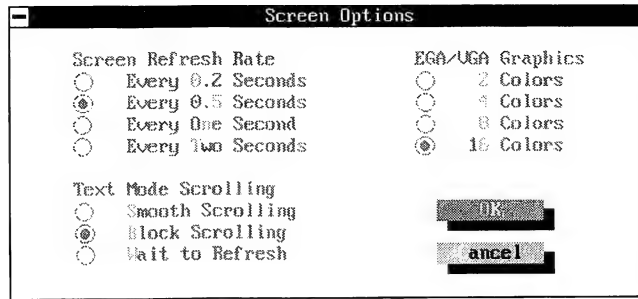


4. Type a path and file name, then choose **OK**.
The screen file is saved on your PC's drive. If you type a file name but no path, the file is saved in your current directory.

Changing the Screen Options

Commute lets you specify three screen options: video refresh rate, text mode scrolling, and EGA/VGA colors. Changing these settings can speed up performance in a Commute session.

1. Press the hotkey (normally **Alt** **R-Shift**) to open the Session Manager.
The Session Manager appears.
2. Choose **Advanced Options** from the Session Manager.
3. Choose **Screen Options**.
The Screen Options dialog box appears.



4. Select the options you want, then choose **OK**.

Screen Refresh Rate: Determines how often Commute sends the information on one PC's screen to the other PC. With a high refresh rate, what you type shows up faster on the screen, but overall performance drops. With a low refresh rate, overall performance is faster because less data is sent, but the screen responds more slowly to your actions.

In a normal, text-based application, it's best to have a fast refresh rate (every 0.5 seconds, the default). Commute can easily handle this much data at a high speed. If a graphics application like a paint program takes too long to change screens, try a slower video refresh rate.

Text Mode Scrolling: Determines how fast Commute displays scrolling text (for example, when you type DIR at the DOS prompt).

Smooth Scrolling is slowest, but Commute displays each new line as it appears.

Block Scrolling is faster because Commute scrolls new information in blocks of several lines at once.

The fastest option, **Wait to Refresh**, shows only small changes until the other PC's screen has stopped changing. These options have no effect on a program running in graphics mode. The Text Mode Scrolling options do not appear if the other PC has a version of Commute earlier than 2.0.

EGA/VGA Colors: Determines how much color information is sent to your PC in graphics mode. If both PCs have EGA or VGA color, you can choose to see fewer colors. If you select **4 Colors**, for example, your screen shows only 4 of the 16 colors that appear on the other PC's screen. Sending less color information speeds up Commute's operation. This option takes effect only on programs running in graphics mode. Commute does not support more than 16 colors at once.

Changing the Keyboard Level

Some programs control the keyboard in an unconventional way. When they do, the keyboard may not respond during a session. If your keyboard doesn't work while controlling another PC, you can use the Enhanced Keyboard option to correct the problem.

1. Press the hotkey (normally **Alt** **R-Shift**) to open the Session Manager.
The Session Manager appears.
2. Choose **Advanced Options** from the Session Manager.
3. Choose **Keyboard Level**.

If you were experiencing problems, you should now be able to use your keyboard. Choose the command again to switch back to using the standard keyboard. The current keyboard driver (Standard or Enhanced) is shown in the Your PC/Other PC panel. The message above the panel tells which keyboard will be selected next.

Identifying the Screen

If you're ever uncertain whose screen you're looking at in a session, you can press the hotkey (the default is **Alt** **R-Shift**).

If ...	Then ...
The Session Manager window appears	Your PC is in control of the other PC.
The Chat window appears	You must have given control to another PC.
The Call Manager appears	Commute is memory-resident but you're not in a session.
Nothing happens	You're not in a session, or you changed your hotkey.

Transferring Files

Commute provides quick, flexible file transfer through the Session Manager. For details on automating a file transfer, see the *Automating a Commute Session* chapter.

Here's what you'll find in this chapter:

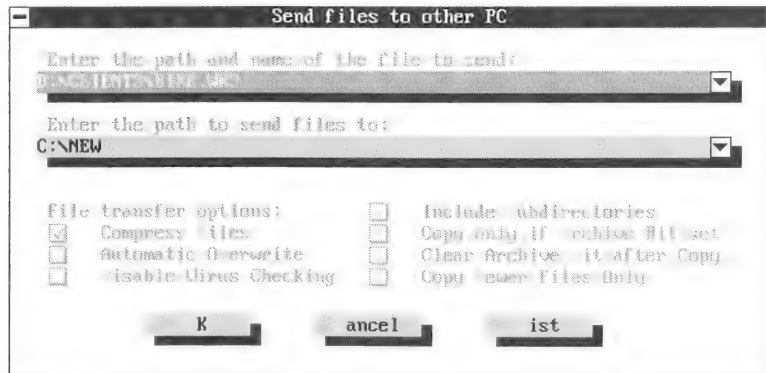
- **Sending Files to the Other PC** explains how to transfer files from your PC to the other PC during a Commute session. This section describes the file transfer options and shows three ways of transferring files:
 - Type a file specification that includes or excludes groups of files.
 - Select from a list of recently used file specifications.
 - Select files from a graphic display of each PC's drives, directories, and files.
- **Getting Files from the Other PC** explains how to transfer files from the other PC to your PC during a Commute session.

Sending Files to the Other PC

Use the Send Files to Other PC command to copy a file or group of files from your PC to the PC you're controlling.

You can transfer multiple files using the two DOS wildcard characters (* and ?). For example, using *.* copies all the files in a directory, and HOME.?? copies all the HOME files with a two-character extension. You can also add or exclude several groups of files at once. For more information, see "Include/Exclude Files" later in this chapter.

1. Press the hotkey (normally **Alt** **R-Shift**).
The Session Manager appears.
2. Choose **Send Files To Other PC**.
The Send Files to Other PC dialog box appears.



3. Enter the path and name of the files you want to send.

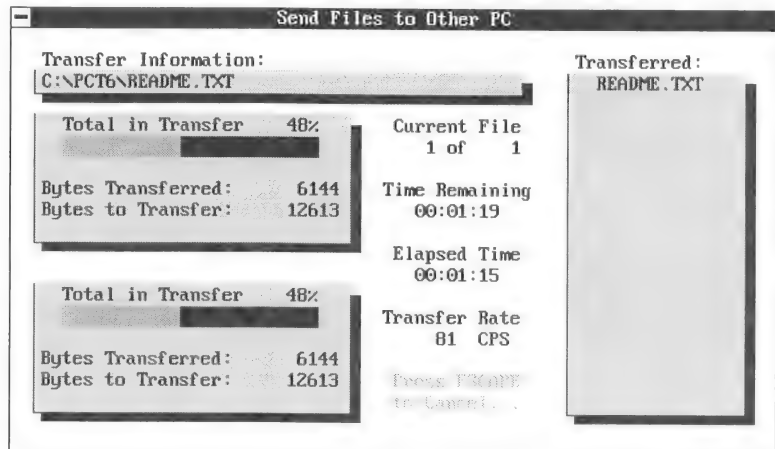
You can also see a list of recently transferred files, or use a graphic tree display to select directories and files. See “Using the File Transfer History Lists” and “Using the File and Directory Lists” later in this chapter.

4. Enter the path of the directory on the other PC where you want to copy the files.

For example, enter D:\PROJECTS\NATALIE. If you enter nothing here, the files are copied into the other PC's current directory. If you add a file name after the path name, Commute renames the file as it is copied, like the COPY command in DOS.

5. Select any file transfer options you want, then choose **OK**.

A dialog box shows the progress of the file transfer. The next section explains file transfer options.



File Transfer Options

When you transfer files using the Session Manager, you can select any of the following options.

Compress Files: Compresses the file in memory before sending it, then decompresses it at the other PC before saving the file. This decreases transfer time. The default for this option is on.

Automatic Overwrite: Allows a file in the destination directory to be overwritten. With this option off, a dialog box appears when you try to transfer a file into a directory where that file name already exists.

Overwrite: Replaces the file.

Skip this file: Skips this file and continues to the next one.

Repeat for all later files: Automatically replaces or skips (according to your selection) any other already existing files during the rest of this file transfer.

Cancel: Stops the file transfer immediately.

Disable Virus Checking: When off, scans each file sent for viruses. If a virus is detected, a dialog box with several options appears.

Send this file anyway: Continues transferring files.

Don't send this file: Skips this file and continues to the next one.

Repeat for all later files: Automatically sends or skips (according to your selection) any other infected files found during the rest of this file transfer.

Cancel: Stops the file transfer immediately.

Commute detects but does not clean viruses. The virus scan process uses the same internal database used by other Central Point Software products, including Central Point Anti-Virus, to recognize all viruses known at the time of manufacture. Central Point Anti-Virus not only detects viruses, but eradicates and protects your files from viruses. The database is routinely updated to include new virus detection information as it is discovered. See "Keeping Central Point Anti-Virus Up-to-Date" in the *About Central Point Anti-Virus* chapter in Part 1 for details on updating the database.

Include Subdirectories: If you use the wildcard combination *.* to specify files to transfer, turning on this option causes any files in subdirectories to be transferred also. For example, enter C:*.* to transfer all files on your C drive. Enter C:\PCTOOLS*.* to transfer all of the files in the PCTOOLS directory and its subdirectories. The directory you transfer the files into must already exist.

If you use the File and Directory Lists to transfer files from multiple directories, this option lets you choose a flat or hierarchical file transfer. With this option *off*, all of the transferred files are copied together into the target directory (the place they're transferred to). With this option *on*, the directory names and structure are also copied to the target directory, so that the transferred files are kept in separate subdirectories.

Copy Only if Archive Bit Set: Copies only files whose archive bit is set, which is useful if you use Commute to back up files to another PC. When you make a backup of a file with a backup program, the file's archive bit is cleared. Then when a file is changed, the archive bit is set to show that the file needs backing up.

Clear Archive Bit after Copy: Clears the archive bit when you copy a file to another PC. This is most useful if you also select the Copy only if Archive Bit set option.

Copy Newer Files Only: When the file you transfer already exists in the destination directory, copies the file only if it is newer (has a more recent date and time) than the existing file. This way, you won't accidentally replace a newer file with an older one. The Automatic Overwrite option is ignored when this option is selected.

Include/Exclude Files

Commute lets you use DOS wildcard characters (* and ?) to choose types of files to include and exclude when you enter a file specification. These options do not apply when you use the graphic File and Directory Lists to select files.

When you *include* a file specification, you're adding to the list of files to be transferred. When you *exclude* a file specification, all the files you specified earlier are sent *except* for these.

To exclude files, enter the file specification preceded by a minus sign (-). For example, `-*.BAT` represents all files except for batch files. For example, to send all files in your \WORD directory except backup files, type

```
C:\WORD\*.* -*.BAK
```

Each file in an include/exclude entry must be on the same drive.

Using the File Transfer History Lists

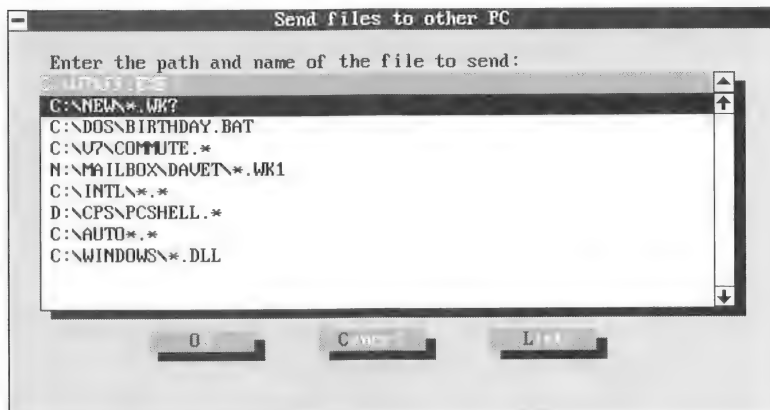
Because file transfers often involve copying the same files to the same directories, Commute maintains a list of the 10 most recent file specifications and directories you entered when sending or receiving files. When you transfer a group of files that you've transferred recently (such as C:\ORDERS*.DOC) to a directory (such as D:\RECEIVED), you can select that file specification and directory from the history lists. This lets you avoid repetitive typing and errors.

1. Press the hotkey (normally **Alt** **R-Shift**), then choose **Send Files To Other PC** from the Session Manager.

The Send Files to other PC dialog box appears.

2. Select the **Enter the path and name** text box, then press **↓**.

The File Name history list appears. It contains the file specifications from the last 10 times you entered files to send. (If you used the graphic tree list to select and send files, those specifications do not appear in the history lists. See "Using the File and Directory Lists" later in this chapter for more information.)



3. Select a file specification from the history list, then press **Enter**.

The selected item appears in the text box.

4. Select the **Enter the path to send files to** text box, then press **↓**.

The Directory history list appears. It contains the target directories from the last 10 times you entered a directory to send files to.

5. Select a directory from the history list, then press **Enter**.
The files will be sent to this directory on the other PC.
6. Select the file transfer options you want, then choose **OK**.
Commute transfers the files to the other PC.

Using the File and Directory Lists

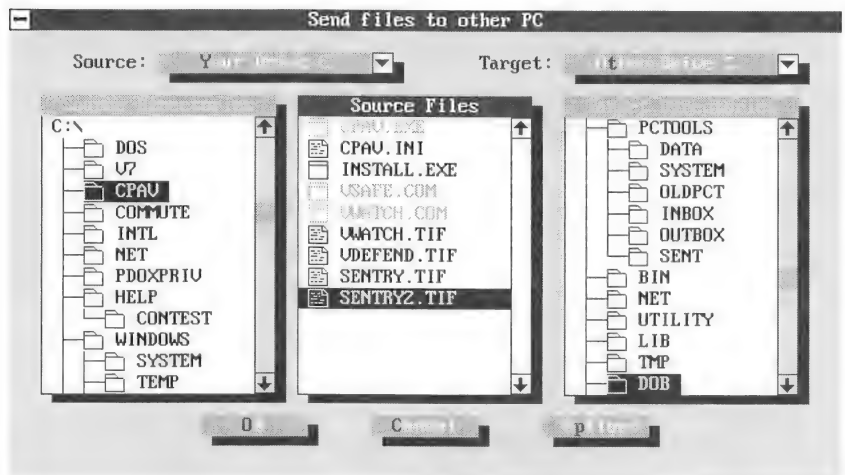
Commute provides another way of selecting files to transfer—the file and directory lists. To make it easier to find where a file is and which directory it should be transferred to, you can see a graphic representation of the directories and files on both PCs.

1. Press the hotkey (normally **Alt** **R-Shift**), then choose **Send Files To Other PC** from the Session Manager.

The Send Files dialog box appears. The List button is not available if either PC is using version 1.x of Commute.

2. Choose **List**.

The file and directory lists window appears. On the left are the directories and files on the source drive (the drive you're copying files *from*). This is your PC when you send files, or the other PC when you receive files. On the right are the directories on the target drive (the drive you're copying files *to*).



3. Select a drive from the Source Drive list.
The directories on that drive appear in the Source Directories list.

4. Select a directory from the Source Directories list.

The files in the selected directory appear in the Source Files list. Press **Enter** or **Spacebar** while the directory is selected to mark all of the files in that directory. You can select multiple directories this way.

5. With the Source Files list highlighted, press **Enter** to mark files to transfer.

By going back and forth between the Source Directories and Source Files lists, you can selectively mark files in multiple directories.

6. Select a directory from the Target Directories list, then press **Enter**.

The files will be transferred into this directory.

7. Choose **Options** if you want to select file transfer options.

If you have marked files in more than one directory, the Include Subdirectories option is especially useful. If this option is off, the files are copied together into the target directory. If this option is on, Commute creates separate subdirectories for the files (using the original directory names) within the target directory. This separates the files that come from different source directories. For information on individual file transfer options, see “File Transfer Options” earlier in this chapter.

8. Choose **OK**.

The file transfer begins.

Getting Files from the Other PC

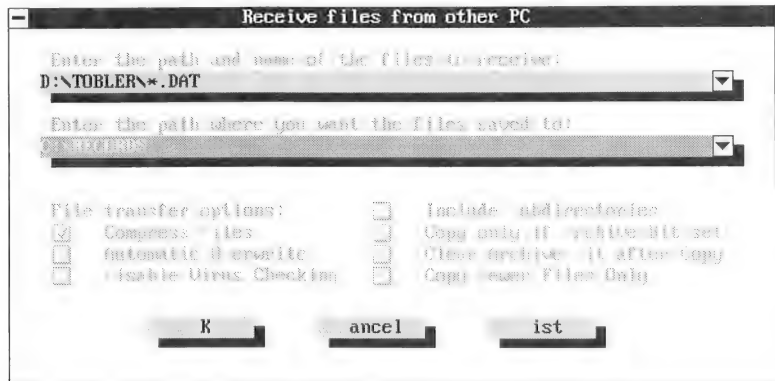
With this command, you can copy a file or group of files from the PC you’re controlling to your PC. This command works in the same way as the Send Files to Other PC command. See “Send Files to Other PC” earlier in this chapter for information on file transfer features.

1. Press the hotkey (normally **Alt R-Shift**).

The Session Manager appears.

2. Choose **Get Files From Other PC**.

The Receive Files from other PC dialog box appears.



3. Type the path and file name of the file you want to receive from the other PC.
4. Type the path of the directory where you want to copy the file.
5. Select any file transfer options you want, then choose **OK**.

Changing Commute Options

Commute provides a variety of configuration options that allow you to tailor Commute's operation to your own needs.

Here's what you'll find in this chapter:

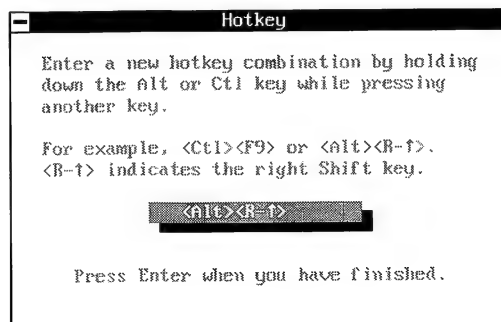
- The first sections of this chapter explains how to change your configuration for the hotkey, modem, COM port, baud rate, connection type, Commute user name, and security settings.
- **Saving Your Configuration** explains how to save your Commute settings so you won't have to select them each time you use Commute.
- **Restoring the Default Configuration** explains how to discard your configuration and return to Commute's original factory settings.
- **Recording and Printing the Activity Log** explains how to configure Commute to keep a record of what happens in each Commute session.
- **Going to the DOS Shell** explains how to pause temporarily to use DOS commands without exiting Commute.

Changing the Hotkey .

You can activate Commute with a hotkey combination (normally **Alt** **R-Shift**) when you're waiting for a call or during a Commute session.

1. Choose **Hotkey** from the Configure menu.

The Hotkey dialog box appears, showing your current hotkey. If you forget your hotkey, choose this command to see it.



2. Press the hotkey combination you want.

Hold down either **Ctrl** or **Alt** while pressing another key—for example, **Ctrl**(H) or **Alt**(R-Shift). Commute's hotkey feature distinguishes between the right and left shift keys, which are represented by an Up arrow.

Your new hotkey appears in the box. Make sure not to use a key combination that conflicts with another application you use.

3. Press **Enter** to accept the new hotkey.

Selecting a Modem

When you configured Commute for the first time, you may have selected a modem. If you get a new modem or find that you selected the wrong modem the first time, you can select a different modem.

1. Choose **Modem List** from the Configure menu.

The Modem List dialog box appears. Choose **Next** or **Prev** to see the rest of the list.

2. Select the type of modem you are using.

If your modem brand is not listed, select the Hayes-compatible 2400 option, then change the Baud Rate setting to match your modem's speed (see "Changing the Baud Rate" later in this chapter).

3. Choose **OK**.

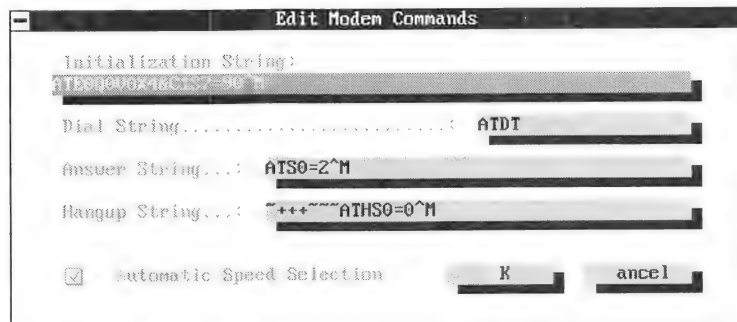
Editing Modem Commands

In cases where a nonstandard modem is not fully Hayes-compatible, you may need to customize Commute's modem commands.

To do this, first consult your modem manual to find out your modem's codes for the commands shown below. The *initialization string* prepares the modem for communication. The *dial string* specifies tone or pulse dialing. The *answer string* enables auto-answer mode and specifies how many rings to allow before answering. The *hangup string* ends the connection and disables auto-answer mode.

Command String	Command Sequence	Hayes Code
Initialization string	Attention	AT
	Command echo off	E0
	Quiet off (send result codes)	Q0
	Result codes in short form (numbers)	V0
	Extended result code 4 or greater	X4
	DCD <i>not</i> forced true	&C1
	DTR use command line normal (not forced)	&D2
Dial string	Carriage return	^M
	Attention	AT
Answer string	Use tone or pulse dialing	DT
	Attention	AT
	Answer on <i>n</i> th ring (as preferred)	S0=2
Hangup string	Carriage return	^M
	Pause	~
	Escape sequence (use command mode)	+++
	Pause (3)	~~~
	Attention	AT
	On-hook (hang up)	H
	Answer on 0 rings (auto-answer off)	S0=0
	Carriage return	^M

1. Start Commute.
2. Choose **Modem List** from the Configure menu.
The Modem List dialog box appears. Choose **Next** or **Prev** to see the rest of the list.
3. Select a modem, then choose **OK**.
4. Once again, choose **Modem List** from the Configure menu.
5. In the list, select **Other**, then choose **OK**.
The Edit Modem Commands dialog box appears. It contains command strings for the modem that was last selected as part of your configuration.



6. Edit the four command strings, then choose **OK**.

Some higher-speed modems support a fixed computer-to-modem baud rate rather than adjusting to the connection speed. If your modem does not support this fixed rate or you are not sure, leave the **Automatic Speed Selection** option on (the default).

NOTE Your modem manual should provide information on fixed or variable data rates. If your modem can support fixed rates, provide the appropriate modem commands in the initialization string text box and turn the Automatic Speed Selection option off.

7. Choose **Baud Rate** from the Configure menu to set the highest baud rate your modem will support.
8. Select a baud rate, then choose **OK**.

Changing the COM Port Setting

Commute communicates with a modem or a directly connected PC through a serial port. Because your PC may have several serial ports, you can choose from COM1 through COM4. COM1 is the default setting. If you attach your modem to a different port, you may need to change this setting.

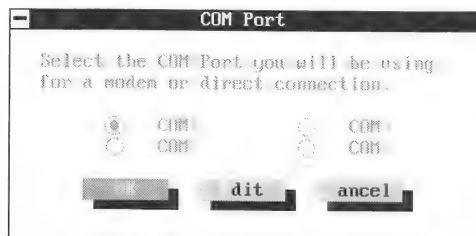
Because COM1 shares some of your computer's resources with COM3, as do COM2 and COM4, you may have problems with serial devices if you use more than two COM ports. If your mouse is connected to COM1, for example, make sure your modem is not connected to COM3.

1. If Commute is waiting for a call, unload Commute from memory and start the program again.

Commute ignores any COM port setting change while it is memory-resident. For details on unloading Commute from memory, see "Unloading Commute from Memory" in the *Starting a Session—Waiting for a Call* chapter.

2. Choose **COM Port** from the Configure menu.

A dialog box appears with your COM port options.



3. Select the COM port that your modem or direct connection cable is attached to, then choose **OK**.

Editing the COM Port IRQ and Base Address

If your modem is attached to COM3 or COM4, and you have a non-PS/2 computer, you must supply the IRQ (Interrupt Request Line) and base address settings for the COM port. See the owner's guide for your PC or serial card for information about which IRQ and base address settings are valid with the COM port you're using.

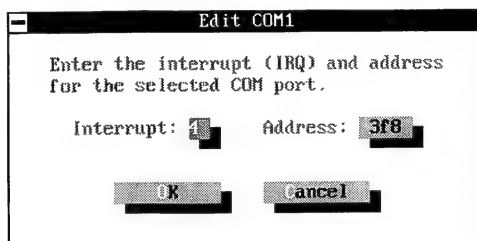
NOTE The standard default values are supplied for COM 3 and COM 4. For COM 3, the values are Interrupt 4 and Address 3F8; for COM 4, the values are Interrupt 3 and Address 2F8.

1. Choose **COM Port** from the Configure menu.

The COM Port dialog box appears.

2. Choose **Edit**.

The Edit COM Port dialog box appears. The port number you're editing (COM1, in this example) is shown in the title bar.



3. Enter the interrupt (IRQ) and port address that your COM port uses, then choose **OK**.

The COM Port dialog box reappears.

4. Choose **OK**.

Changing the Baud Rate

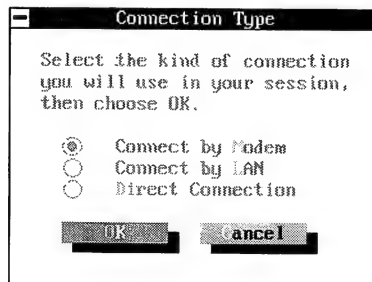
The baud rate setting determines how fast your PC sends data through the communications port. When you select a modem, the baud rate is automatically set to the modem's maximum rate. If the two modems used in a Commute session don't communicate at the same rate, Commute automatically adjusts the baud rate. You will rarely need to change this setting.

1. Choose **Baud Rate** from the Configure menu.
A dialog box appears with your baud rate options.
2. Select a baud rate, then choose **OK**.

Changing the Connection Type

When you wait for a call, a dialog box appears, asking what connection type you want to use (modem, LAN, or direct). The default choice in that dialog box is what you chose when you first configured Commute or when you last changed the Connection Type setting.

1. Choose **Connection Type** from the Configure menu.
The Connection Type dialog box appears, showing your current connection type.



2. Select a connection type, then choose **OK**.

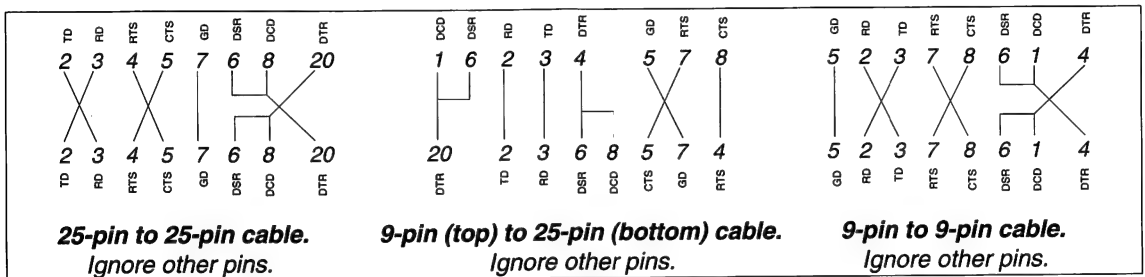
Using a Direct Connection

Most of the examples in this manual assume you are using a modem or LAN connection to take control of another PC. Under certain circumstances, you may want to connect two PCs directly, using a null-modem cable.

You can use a direct connection to transfer files quickly from your laptop hard disk to your office PC. Or you can connect a non-networked PC (your laptop, for example) to your local area network. Simply use your laptop to take control of the PC that's attached to the LAN, and you have access to network files.

1. Connect the two computers with a full null-modem cable.

A null-modem cable, which you can buy at most computer supply stores, has a serial-style connector at each end. A serial cable alone does not work. You need a full null-modem cable, which uses the following pin assignments:



NOTE While there is no true standard for a full null-modem cable, these pin assignments are the closest thing to it. However, some cables or adapters advertised as "full null-modem" may not meet this standard. Use this diagram to make sure.

You can also use a regular serial cable with a null-modem adapter. Be sure to get the right cable and adapter for the two PCs. Some PCs use 9-pin serial connectors, while others use 25-pin connectors.

2. Set the baud rate to the same rate on each PC.

The default baud rate setting for a direct connection is 19,200, which is compatible for most systems. However, if both of your computers are fast (386- or 486-class computers) you can use the higher settings. As a general rule, you must use a lower baud rate when connecting a slow computer (a 286, for example) with a fast computer (a 386, for example).

3. On the PC that is giving control, change the connection type to Direct Connection as described earlier in this section, then choose **Wait for Any Caller** from the Session Manager.
4. On the PC that is taking control, choose **Call and Take Control** from the Session Manager.

The Private Call List dialog box appears.

5. Select **MANUAL CALL**, then choose **OK**.

The Manual Call dialog box appears.

6. Select **Direct**, then choose **OK**.

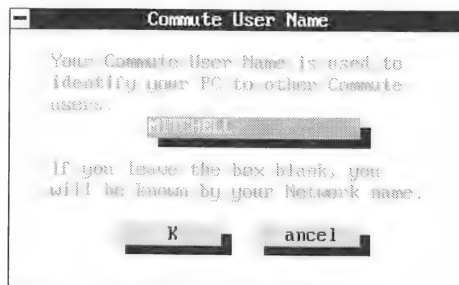
A direct connection does not require a phone number. If the direct connection doesn't work, make sure that you have the proper cable, that Commute's COM port setting is set to the proper COM port, and that the baud rate is set at a speed compatible with both systems.

Changing the Commute User Name

Commute uses the Commute user name to identify you when you make a connection with another PC. You entered a Commute user name during configuration, but you can change it if you want.

1. Choose **Commute User Name** from the Configure menu.

The Commute User Name dialog box appears, showing your current Commute user name.



2. Enter a name, then choose **OK**.

This is the name you will be known as when using Commute.

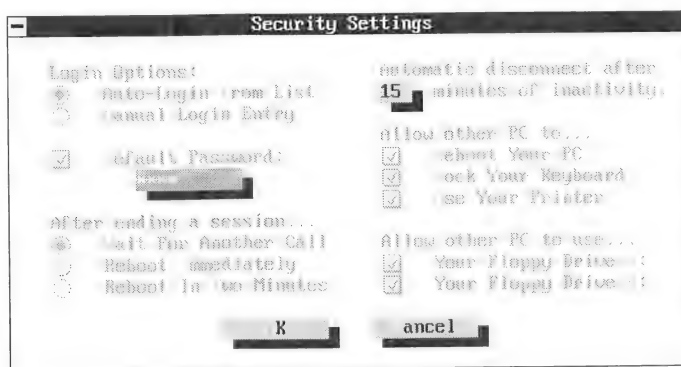
Changing Security Settings

The Security command lets you select security settings that apply to every PC you give control to. Using these settings, you can require a caller to give a default password and limit access to some of your computer's functions when you give control to any other PC.

You can also add security restrictions for an individual PC, using the Give Control List. For details, see the *Starting a Session—Waiting for a Call* chapter.

1. Choose **Security** from the Configure menu.
The Security Settings dialog box appears.
2. Select the options you want, then choose **OK**.
The next time you give control of your PC to another PC, these settings will be active. Each option is explained in the following section.

Security Settings Options



Auto-Login From List: Automatically enters the other PC's Commute user name and password from the caller's Private Call List when they call. This option applies when you wait for a call by choosing Wait from Call List or Wait for One Caller.

Commute verifies that the caller's Commute user name is in your Give Control list. If you have required a password, Commute verifies that the caller's password is correct. This option is required when automating a call (see the *Automating a Commute Session* chapter).

Manual Login Entry: Requires a PC user who takes control of your PC to manually enter his or her name and password, if necessary.

Default Password: Requires any user who tries to take control of your PC to give the default password. If you have a password in your Give Control list entry for the other PC, that password is required instead of the default password.

The following three options determine what your PC does after a session when another Commute user takes control of your PC. To keep your system secure, these options also take effect if your phone line goes down or the connection is inadvertently broken.

Wait for Another Call: When a session ends, leaves your PC waiting for a Commute user to take control of it.

Reboot Immediately: When a session ends, reboots your PC as soon as the other PC is disconnected. If your AUTOEXEC.BAT file does not contain a command that loads Commute memory-resident to wait for a call, this option makes sure your PC is not accessible after a session ends.

Reboot in Two Minutes: When a session ends, reboot your PC after two minutes. During those two minutes, your PC remains waiting for a call. This option allows the other PC a quick opportunity to reconnect with your PC in case the connection is accidentally broken, but doesn't leave your PC accessible after that. (Like the preceding option, this assumes that your AUTOEXEC.BAT file does not contain a command that loads Commute memory-resident to wait for a call.)

Automatic Disconnect: Ends the session after a certain amount of time passes with no action at either PC. Enter the number of minutes (up to 60) to wait. Enter 0 if you don't want Commute to disconnect automatically. If you have to leave your desk during a Commute session, you may not want the session to continue indefinitely — especially on a long-distance call.

TIP You can use this option to remove the normal 10-second delay when someone takes control of your PC. To do this, add 128 to the Automatic Disconnect setting. For example, enter 140 to set a 12-minute Automatic Disconnect time and skip the delay when starting a session.

Reboot Your PC: Allows the controlling PC to reboot your computer.

Lock Your Keyboard: Allows the controlling PC to lock your keyboard during a session to prevent you from typing something during a critical procedure.

Use Your Printer: Allows the controlling PC to use your printer during a session.

Floppy drive A and B: Allows the controlling PC to use your floppy disk drives during a session. For example, if you select drive A: only, then trying to use drive B: during a session gives an "Invalid drive specification" error.

Saving Your Configuration

Use the Save Configuration command after changing settings on the Configure menu or use the Record Activity option from the File menu. This way, Commute uses these settings each time you start Commute. You are also given a chance to save your configuration when you exit Commute.

- Choose **Save Configuration** from the Configure menu.

The current settings are saved in the COMMUTE.CFG file.

Restoring the Default Configuration

You can restore Commute's default configuration (the program's original settings) if you want. The defaults are as follows:

Option	Default Setting	Security Option	Default Setting
Hotkey	Alt R-Shift	Login option	Auto login from list
Modem	Hayes-compatible 2400	Default Password	No password
COM Port	COM1	Auto-disconnect	15 minutes
Baud rate	2400	After ending a session . . .	Wait for another call
Connection Type	Modem	Allow other PC to...	Reboot your PC Lock your keyboard Use your printer Use your A: and B: drives
Commute User Name	Network login name		

- Choose **Restore Defaults** from the Configure menu.

The default settings are saved in the COMMUTE.CFG file.

Recording and Printing the Activity Log

Commute can record the basic statistics of each Commute session: the Commute user you connected with, when the sessions began and ended, and what files were transferred. To save space on your disk, the information is stored in compressed form, then decompressed as a text file when you want to read or print it.

Recording Session Activity

- Choose **Record Activity** from the File menu.

A check mark appears next to the command. Commute records the activity for each session from now on. The number of sessions that the activity log can record is limited only by disk space.

Stopping the Recording of Session Activity

- Choose **Record Activity** from the File menu.

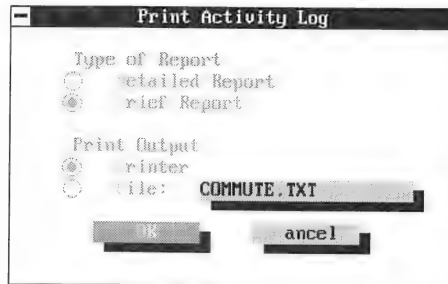
The check mark next to the command disappears. Information from your next session will no longer be recorded.

Resetting the Activity Log

- From the DOS command line, delete the COMMUTE.LOG file from the directory where you installed Commute.

Printing or Saving Your Activity Log

1. Choose **Print Activity Log** from the File menu.
The Print Activity Log dialog box appears.



2. Select **Brief Report** or **Detailed Report**.
The Brief Report option gives only the ending time of each session. The Detailed Report option lists the other PC, what time the session began and ended, and which files (if any) were transferred.
3. Select **Printer** or **File**.
Printer sends the file to the printer; File saves the activity log as a text file on your disk.
4. If you selected **File**, type a file name in the text box.
The default file name is COMMUTE.TXT.
5. Choose **OK**.
Commute prints a report or creates a text file with information on all sessions held while the Record Activity option was selected. The following is a typical detailed report:

Commute Log File Report

```
02/14/1991 02:17p - System up
02/14/1991 02:17p -      Called 9,5551864
02/14/1991 02:20p -      Call ended normally
02/14/1991 02:48p - System up
02/14/1991 04:31p -      Called CURTIS'S 386
02/14/1991 04:34p -      Menu Driven File Transfer Started
02/14/1991 04:34p -      File transfer ended normally
02/14/1991 04:35p -      Program run: C:\WINDOWS\WIN.COM
02/14/1991 04:49p -      Call ended normally
End of Report
```

Page: 001

Going to the DOS Shell

You can temporarily return to DOS from Commute using the DOS Shell command.

- Choose **DOS Shell** from the File menu.

Commute goes to DOS temporarily, and a bar at the top of the screen tells you how to return to Commute.

Returning to Commute from the DOS Shell

- From DOS, type

EXIT

The Call Manager window in Commute reappears.

Automating a Commute Session

Commute is equipped with Auto-Call, a scripting capability that lets you automate repetitive tasks in a Commute session. You can then repeat the tasks by running the Auto-Call script. Commute also includes a memory-resident scheduling program that can run a script at a specified time. With these two features, you can fully automate a Commute session. For example, you can run an Auto-Call script to transfer files while both PCs are unattended.

Here's what you'll find in this chapter:

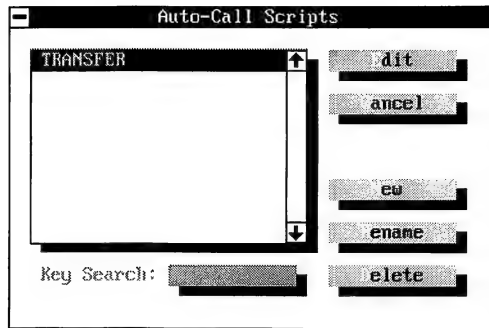
- **Scripting a Session** explains how to use the Script Editor to create a script that can call another PC, transfer files, and run DOS commands.
- **Running a Session with a Script** explains how to actually use a script that you've created to run a Commute session.
- **Scheduling an Unattended Call** explains how to use Commute to schedule a script that will run automatically at a predetermined time.

Scripting a Session

You may repeat some Commute actions in every session—making a call, executing DOS commands, transferring files, and ending the session. If so, you can use the Auto-Call script feature to assemble a script for you. When you run the script, those actions are performed automatically. To schedule a script to run at a specified time, see “Scheduling an Unattended Call” later in this chapter.

Creating an Auto-Call Script

1. Choose **Auto-Call Scripts** from the Configure menu.
The Auto-Call Scripts dialog box appears, showing a list of available scripts.



Edit: Lets you change the selected script.

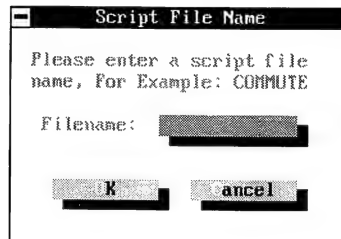
New: Creates a new script.

Rename: Lets you rename a script file.

Delete: Removes the selected script.

2. Choose **New**.

The Script File Name dialog box appears.

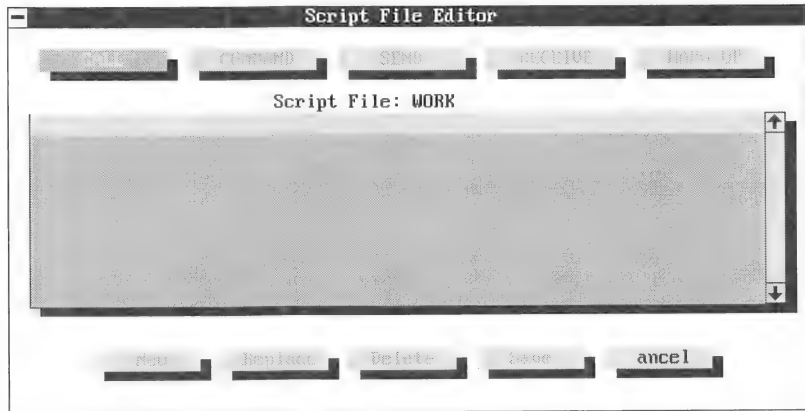


3. Type a file name.

You do not need to add an extension. Commute supplies the .CSF extension.

4. Choose **OK**.

The Script File Editor appears. The Call and Cancel buttons are active.



Auto-Call Script Actions

Call: Displays the Private Call list, allowing you to select the PC you want to call. Use the list the way you normally do to select a PC (see the *Starting a Session—Calling a PC* chapter). Instead of making the call immediately, Commute adds the action to the script.

If you select a PC using the Manual Call or LAN User List options, a letter appears next to the call action in the script, showing the connection type: M (modem), L (LAN), or D (direct connection).

Command: Displays a dialog box in which you can type any DOS command that you want to execute during a Commute session. It can be a command to run a program, list the files in a directory, run a batch file, or any other DOS command. A scripted DOS command works only during a session, not before making a connection or after disconnecting, and you can use it only on the PC you've taken control of.

Send: Displays the Send File to Other PC dialog box. You can enter the files you want to send, the directory to copy them into, and any file transfer options you want. For details, see the *Transferring Files* chapter. The script displays abbreviations for the selected file transfer options.

Receive: When you choose Receive, the Get Files from Other PC dialog box appears. This works in the same way as the Send File to Other PC dialog box.

NOTE When sending or receiving files in a script, the default options are different from Session Manager file transfer: Automatic Overwrite and Disable Virus Checking are active in addition to Compress Files. This way, no dialog box interrupts the progress of an unattended file transfer.

Hang Up: When you choose Hang Up, Commute inserts a disconnect command in the script. When the script reaches this point, the connection is broken and the session ends. Hang Up should be the last command in a script that is meant to be run unattended.

Adding Actions to a New Script

1. Choose **Call** from the Script File Editor.
A Call action must be the first line in a script. When you choose Call, the Private Call List dialog box appears.
2. Select a PC from the Private Call list, then choose **OK**.
The /CALL line is added to your script. You can also use the Manual Call or LAN User List options in the Private Call list, as when making a call normally.
3. Choose an action button.
When you choose **Command**, **Send**, or **Receive**, the corresponding dialog box appears.
4. Enter information in the dialog box, then choose **OK**.
5. Repeat steps 3–4 until you’ve included all the actions you want to take during the scripted session.
6. Choose **Hang Up**.
If you do not want to disconnect automatically at the end of a script, leave out the Hang Up command.
7. Choose **Save**.
The Auto-Call script is saved and the Script File Editor closes.

Replacing an Action in a Script

1. Select an action from the script.
2. Choose **Replace**.
The action buttons at the top of the dialog box become active.
3. Choose an action button.
The corresponding dialog box appears.
4. Make the changes, then choose **OK**.
The action you specify replaces the selected line in the script.

Deleting an Action from a Script

1. Select an action from the script.

You cannot delete the first action (a Call action) because each script must begin with a call.

2. Choose **Delete** from the Script File Editor.

The action is deleted from the script.

Running a Session with a Script

Once you have saved a script, you can use it to make a call automatically, start a session, and carry out whatever actions you included in the script. You can run the script at the DOS prompt or at a specified time. To learn how to schedule a script, see “Scheduling an Unattended Call” later in this chapter.

1. Make sure the other PC is waiting for a call.

NOTE If your script runs a DOS command, make sure the PC that is waiting for a call is at the DOS prompt, not using an application.

Also, if you plan to run this as an unattended script, make sure the other PC's security settings include the Auto-Login feature. With Auto-Login, you can allow the unattended PC to take control of your PC—and still have password protection. See the Changing Commute Options chapter for details.

2. From DOS, type

```
COMMUTE filename 
```

where *filename* is the name of the script file you want to run.

Script files have a .CSF extension, but you don't need to type it. For example, if your script file is REPORTS.CSF, type

```
COMMUTE REPORTS 
```

Commute makes the call, starts a session, and the script takes over to transfer files or carry out DOS commands.

NOTE While you run an Auto-Call script, your keyboard is locked automatically to make sure accidental keystrokes do not interfere with the execution of the script. Your keyboard becomes active again as soon as the script ends.

Scheduling an Unattended Call

You can run an Auto-Call script at a specified time by using a memory-resident scheduling program called CPSCHED along with the Schedule Calls command. This feature is helpful if there are specific times during the week when you perform tasks like transferring files or running batch files. If you use a modem, you can schedule scripts to run at night, when telephone costs are lower.

Loading the Commute Scheduler Automatically

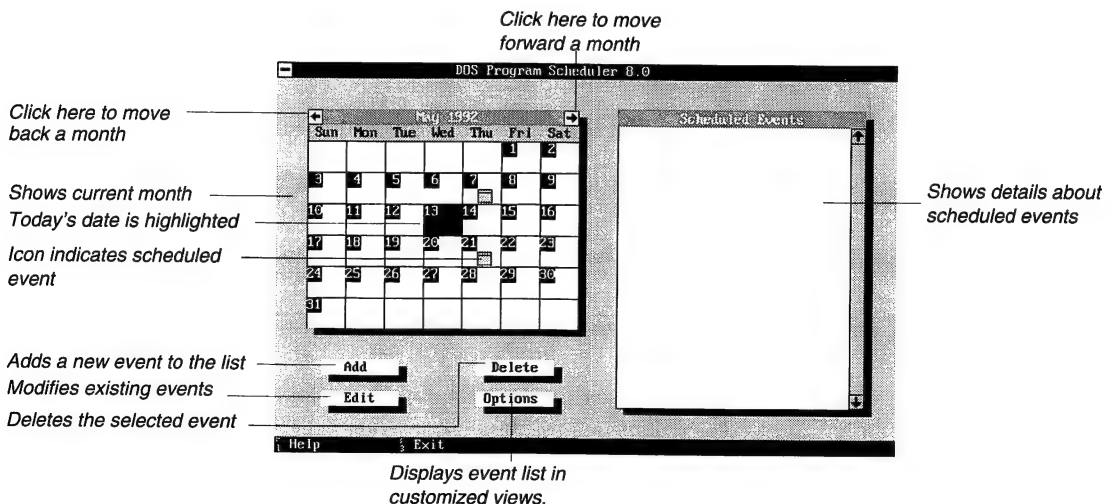
- Add this command to your AUTOEXEC.BAT file:

CPSCHED

Now each time you start your PC, the scheduling program is loaded into memory.

Scheduling a Call

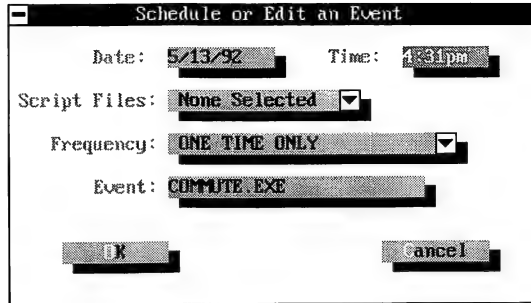
1. Choose **Schedule Calls** from the Configure menu.
The Scheduler window appears.



2. Select the day on the calendar you want to schedule a program to run.

3. Choose **Add**.

The following dialog box appears:



4. If you want to change the date, then type the date, using the format mm/dd/yy in the Date text box.
5. Type the time you want to schedule your program, using the format hh:mm (a or p, Scheduler appends an "m" for you) in the Time text box. Do not put a space between the time and the am or pm.
6. Select a frequency.
Daily: Schedules the event to occur every day.
One Time Only: Schedules the event to occur one time.
Workdays Only: Schedules the event on the days you identify as workdays. You select the days of the week you want treated as workdays with the Options button on the main scheduler window. See the following section, "Scheduler Options" for details.
Monthly-Fixed Day: Schedules the event on the same date every month.
Monthly-Fixed Weekday: Schedules the event on the the same weekday every month.
Biweekly: Schedules the event on the same weekday every other week.
7. Select a script name from the drop-down list box.
8. Choose **OK** to save this information.
9. Continue in this manner until you have scheduled all the events you want.
10. Choose **Exit**.

11. Make sure the **Save Changes in Schedule** option in the Close dialog box is checked to save your scheduling information.

If your PC has the CPSCHED.EXE program memory-resident, and the other PC has Commute waiting for a call, then at the specified time your script will be carried out.

Editing Existing Scheduled Calls

If you have scheduled events that you want to change, for example, from daily at 5:00 pm to daily at 7:00 pm, edit your events.

1. Choose **Schedule Calls** from the Configure menu.
The Scheduler window appears with events scheduled.
2. Select the event you want to change in the Scheduled Events list.
3. Choose **Edit**.
4. Make your changes in the Schedule or Edit an Event dialog box.
For details, see steps 4-7 in the previous section, "Scheduling an Call."
5. Choose **OK** to save this information.
6. Choose **Exit**.
7. Make sure the **Save Changes in Schedule** option in the Close dialog box is checked to save your scheduling information.












Deleting Scheduled Calls

If you decide you don't want a scheduled call to occur anymore, you can delete it.

1. Choose **Schedule Calls** from the Configure menu.
The Scheduler window appears with events scheduled.
2. Select the call you want to delete in the Scheduled Events list.
3. Choose **Delete**.
The call is removed from the list.

Keystrokes for Navigating the Calendar

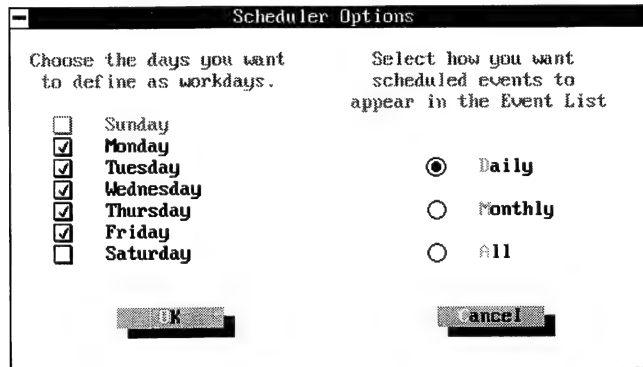
Use the following keys to navigate the Calendar window.

Use This Key	To Move to
 and 	Yesterday and tomorrow.
 and 	Last week and next week.
	Event List from Calendar and back.
 and 	Last month and next month.
  and  	Last year and next year.

Scheduler Options

The **Options** button lets you define what days you want the Scheduler to recognize as work days, and change how scheduled events appear in the list: daily, monthly, or all.

When you choose **Options**, the following dialog box appears:



- ▶ Select the days you want defined as workdays: Specifies the days of the week that are treated as workdays and appear as options under Frequency.
- ▶ Select how you want scheduled events to appear in the Event List.
 - Daily:** Displays only those events scheduled on the selected date.
 - Monthly:** Displays those events scheduled on any day in the current month.
 - All:** Displays all scheduled events.

Running a Gateway Commute Session

You can sometimes bridge two PCs that couldn't ordinarily communicate by starting a gateway session. This chapter assumes that you are already familiar with Commute and know how to use the Session Manager.

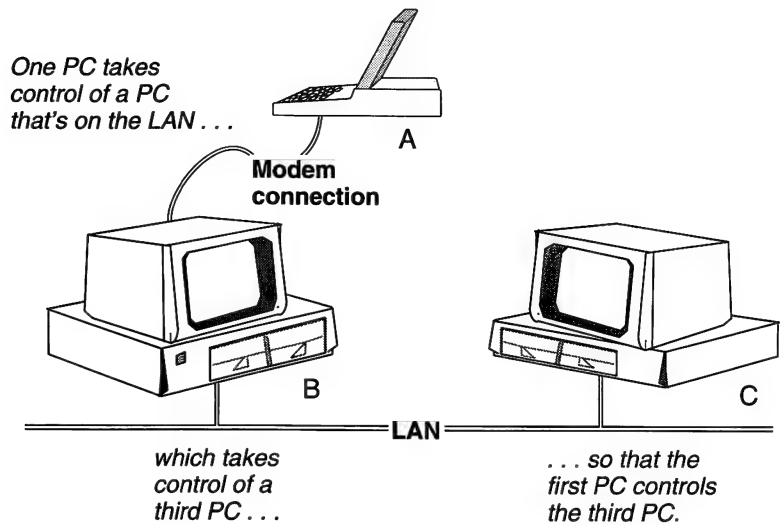
Here's what you'll find in this chapter:

- **How a Gateway Session Works** explains why a gateway session can be useful to you and how it works.
- **Using the PCs in a Gateway Session** explains how to wait for a call and call and take control to start the gateway session.
- **Ending a Gateway Session** explains how to disconnect a gateway session.

Commute does not support Windows in a gateway session. If you are using a gateway session, do not run Windows.

How a Gateway Session Works

You can run two Commute sessions simultaneously. For example, you may want to control your office PC from home, but it doesn't have a modem. Suppose you have access to another PC on the network that does have a modem. Using Commute, you can call that PC from home by modem, and from there call your PC on the LAN. In this way, computer A takes control of B, which takes control of C. A controls C during the Commute session, and B acts as a *gateway* between the other two PCs.



In the example above, you can call in by modem from home (A) and take control of B (which also has a modem), then call out over the LAN from B to take control of your office computer (C).

Commute allows a gateway session with a LAN connection combined with any other connection type. You can use any of the following combinations of connection types in a gateway session:

- Modem and LAN
- LAN and LAN
- Direct connection and LAN

Starting a Gateway Commute Session

1. Before calling from the first PC (your PC), make sure the second PC (the gateway) and the third PC (the one you eventually want to control) are waiting for a call.
2. Start a Commute session as you normally would, taking control of the gateway PC.
3. While controlling the gateway PC from your PC, start Commute on it. The Call Manager window appears on the gateway PC's screen and is reflected on your PC.

4. Using Commute on the gateway PC (controlling it from your PC), call and take control of the third PC.

TIP You could automate this process using a pair of Auto-Call scripts: a script on the first PC that calls and takes control of the second, and a script on the second PC that calls and takes control of the third PC. See the Automating a Commute Session chapter for details on creating a script.

Using the PCs in a Gateway Session

Now you're controlling the third PC from your first PC, with the second PC acting as a gateway. Because the gateway PC is a transparent connection, all of your actions take effect on the third PC. If you transfer files or reboot the other PC, Commute works as if the first and third computers were connected in a normal session.

Ending a Gateway Session

1. Press the hotkey to open the Session Manager.
2. Choose **End the Session**.

All three PCs are disconnected at once, and the session ends.



Using Commute with Windows

Commute is powerful enough to run Microsoft Windows version 3.x on the PC you take control of. This chapter describes ways to optimize the performance of Commute in the Windows environment, contains tips on installing Commute for use with Microsoft Windows, and explains how to run Commute from within Windows.

Here's what you'll find in this chapter:

- **Special Display, Keyboard, and Mouse Drivers for Windows** explains the function of replacing display, keyboard, and mouse drivers for use with Windows.
- **Excluding High Memory for Windows** explains how to prevent problems with Windows and high memory.
- **Starting Commute from within Windows** explains how to resolve problems loading Commute in Windows when you are logged onto a Novell network.
- **Automatic Disconnect in Windows** explains that the Automatic Disconnect feature is disabled in Windows.
- **Using Windows while Waiting for a Call** explains how to load Commute memory-resident if you want to use Windows while waiting for another PC to call you.

Special Display, Keyboard, and Mouse Drivers for Windows

Commute includes several extra program files for use with Windows.

Windows needs special display, keyboard, and mouse drivers when you run Commute. The drivers, COMMDIS.DRV, COMMKBD.DRV, and COMMMOU.DRV, are copied automatically to your Windows directory during installation and installed in your SYSTEM.INI file. They are used in the `display.drv`, `keyboard.drv`, and `mouse.drv` lines in the SYSTEM.INI file. There is also a driver, COMMVXD.386, used for running Windows in enhanced mode. This file is copied to the directory where you install Commute.

NOTE If your original mouse driver file is named `MOUSE.DRV`, *Install* makes a copy of the file, named `CMOUSE.DRV`, and specifies this driver in the SYSTEM.INI file.

If your mouse or keyboard doesn't respond properly when Windows is running during a Commute session, try reinstalling Commute. This reinstalls the necessary Windows drivers.

Excluding High Memory for Windows

If you use a memory manager and experience lockups or system errors when running Windows remotely, you may need to exclude a segment of high memory when using Commute. Exclude the memory segment B000-BFFF in your memory manager's entry in the CONFIG.SYS file. Refer to your memory manager's documentation for specific instructions for excluding memory addresses.

Starting Commute from within Windows

If you are on a Novell network and load Commute from within Windows, the VIPX.386 Windows network driver may keep Commute from working properly. There are two ways to solve this problem:

1. Load Commute memory-resident before starting Windows.

or

2. Edit the Windows SYSTEM.INI file to delete the reference to VIPX.386 from the "network=" line. Leave the rest of the line as it is.

The average system will not be affected by this. Removing this driver means that multiple DOS applications can no longer access Novell's IPX services simultaneously.

Automatic Disconnect in Windows

Commute's Automatic Disconnect feature is disabled while Windows is running. You should exit Windows by choosing Exit from the File menu in the Program Manager rather than by rebooting automatically.

Using Windows while Waiting for a Call

You can use Windows while waiting for a Commute call if you set up Commute to wait for a call before starting Windows.

1. Start Commute and wait for a call as you normally would.

Commute loads into memory and returns to DOS.

2. Start Windows.

When another PC calls, a dialog box appears to announce the caller, as usual.

If Commute doesn't answer a call you are sure is coming in, you may not have installed the Windows TSR Manager. Use Install from your installation disks and reinstall Commute.

Using Commute on a Network

This chapter is intended for the person responsible for installing Commute on a network. It assumes that you have supervisor privileges on the network and are familiar with network concepts and commands.

Here's what you'll find in this chapter:

- **Installing Commute on a Network** explains how to install Commute files on a network server for access by network users.
- **Commute Network Tips** explains what loading order to use for Commute, network drivers, and other memory-resident software.

Installing Commute on a Network

You can install Commute on Novell NetWare (version 2.15 or higher), NetWare 386, IBM PC LAN, or another standard server. The program can then be run from any station on the network that has access to the files on the server. Users then have access to Commute program files for modem calls, direct connections, or (with NetWare or NetBIOS networks) LAN calls.

NOTE *You must purchase as many copies of Commute as there are network users of Commute, or contact us to purchase a site license. See the license agreement on the disk envelope for details.*

These are the steps that the network supervisor should take to install Commute on a network.

1. Start Install and choose to install on a network server.

Install copies the Commute program files to the network directory that you specify. (If necessary, it creates this directory, provided that you have appropriate network privileges.)

After the files have been copied to the server, exit Install.

2. Assign all users privileges to read and open files in the Commute directory.

For a Novell network, these privileges are as follows:

Novell NetWare 286	Novell NetWare 386
Read From File	Read
Open Existing Files	File Scan
Search For Files	

3. For each user, create a directory to hold the user-specific files that Commute creates. Each user should have full privileges in his or her user directory.

You should create a directory named `\HOME` (or another name) that contains a subdirectory named for each user's login name so that each user can have individual settings on the network.

4. Set the environment variable `COMMUTE` to point to the user directory you have created for each user.

- ▶ For Novell networks, use the `SYSCON` command to add a line like the following to the System Login script:

```
SET COMMUTE="drive:\\HOME\\%LOGIN_NAME"
```

drive is the drive where the user directories are located.

- ▶ For a network that runs NetBIOS, set the environment variable to point to the user directory as you normally do with that network.
- ▶ For IBM PC LAN networks, add a line like the following to each user's `AUTOEXEC.BAT` file before the commands that log the user on to the network:

```
SET COMMUTE=drive:\HOME\login
```

drive is the drive where the user directories are located, and *login* is the name of the user directory.

5. Add to each user's search path the directory where you installed Commute.

- ▶ For Novell networks, use the `SYSCON` command to add this line to the System Login script:

```
MAP INS Sn:=server\volume:path
```

n is the search drive number; *server*, *volume*, and *path* specify the directory where you installed Commute.

- ▶ For a network that runs NetBIOS, add the directory where Commute files are installed to each user's search path, as you normally do with that network.
- ▶ For IBM PC LAN networks, add the Commute drive and directory to the PATH command in each user's AUTOEXEC.BAT file.

For example, you might install Commute in G:\COMMUTE, and a user's current PATH command might look like this:

```
PATH=C:\BIN;C:\LN;F:\MAIL
```

In this case, you would change it to look like this:

```
PATH=C:\BIN;C:\LN;F:\MAIL;G:\COMMUTE
```

After the Network Supervisor Installs Commute

If you want to load Commute or Scheduler from this workstation's AUTOEXEC.BAT file, run Install from each local hard drive. Either the supervisor or the user can do this.

Commute Network Tips

You can use Commute on a Novell or NetBIOS network to transfer files directly to another PC, without having to use the server as an intermediate step. You can also take control of another PC to diagnose and solve problems, without leaving your desk, using the network.

NOTE To use Commute to connect two PCs over a network, you must be using Novell NetWare version 2.15 or higher, NetWare 386, or a NetBIOS network.

On the PC that you're going to take control of, you should load memory-resident programs in this order to minimize conflicts:

1. Network software
2. Other TSRs
3. Commute

NOTE Make sure you load your network software before having Commute wait for a call. If you load your network software after Commute, you may have difficulty gaining access to the network.

If you use a SHELL.CFG file on your PC with a Novell network, make sure the packet size is set to 2048. The other settings will not allow Commute to transfer files.

For Novell networks, it's only necessary to load the network driver, IPX.COM, to establish a connection over the network. You do not have to load the network shell or to be logged on to the network. This is useful to know in situations where you need to conserve memory.

However, when only IPX is loaded, the following limitations apply:

- You can only connect with users who are logged on to the server you are physically attached to—but not to other connected servers.
- The LAN Server List is not available.

Commute Command-Line Options

As you become more familiar with Central Point Commute, you can specify options from the DOS command line. These options provide a faster way of changing your setup without modifying and saving your configuration each time. For example, if you often call two branch offices that use different security settings, you could create a batch file for each that includes the appropriate options.

This chapter explains how to use each of the command-line options available when starting Commute from DOS.

```
COMMUTE [script name or call list name or user name]  
[ /8250 ] [ /AL=on ] [ /BO=on ] [ BR=n ] [ /CP=n ]  
[ /CT=type ] [ /DPW=password ] [ /DRD ] [ /DR=a ] [ /IA=n ]  
[ /IN ] [ /L=a ] [ /LK=on ] [ /MA=string ] [ /MD=string ]  
[ /MH=string ] [ /MI=string ] [ /NA=name ] [ /NCP ] [ /NE ]  
[ /NL ] [ /NOC ] [ /NU ] [ /NX ] [ /PR=on ] [ /R ] [ /RD ]  
[ /RL ] [ /RG ] [ /RGL ] [ /RT ] [ /SMC ] [ /SVD ] [ /U ] [ /WR ]
```

You may use as many options as you want, up to 128 characters (a DOS limitation). However, contradictory combinations are not allowed. For example, /R (which loads Commute into memory to wait for a call) is not compatible with /U (which unloads Commute from memory). The brackets are *not* part of the option and should not be typed. Leave a space between each specified option.

For a list of the command-line options that control display, mouse, and keyboard settings, see the *Global PC Tools Command-Line Options* chapter in Volume 1.

You can use the following command-line options with Commute:

Option	Description
<code>/?</code>	Displays an online description of these command-line options.
<code>script name or call list name or Commute user name</code>	Starts a Commute session by using the specified Auto-Call script name, Private Call List item, or Commute user name. You don't need to type the .CSF extension after a script file name. For example, to use your NELSON.CSF script, type COMMUTE NELSON Enter If there is no script named NELSON, Commute checks the Private Call list for the NELSON entry; if there is no entry by that name, Commute attempts a LAN call to that Commute user name.
<code>/8250</code>	Allows Commute to work with certain older serial cards that have a faulty 8250 UART chip. Try this option if you consistently get a "modem reported error" message.
<code>/AL=ON or OFF</code>	Turns the Record Activity setting for the activity log on or off.
<code>/BO=ON or OFF</code>	Allows (ON) or doesn't allow (OFF) the controlling PC user to reboot your PC during a Commute session. To keep the other user from rebooting your PC, type COMMUTE /BO=OFF Enter This option applies only to the PC that gives control.
<code>/BR=<i>n</i></code>	Sets the baud rate to the number you specify, where <i>n</i> is one of the allowable rates: 1200, 2400, 4800, 9600, 19200, 38400, 57600, or 115200.
<code>/CF</code>	Configure option. Commute goes through the configuration process as if starting for the first time.
<code>/CP=<i>n</i></code>	Sets the COM port to COM <i>n</i> , where <i>n</i> is 1, 2, 3, or 4. For example, to use a modem connected to COM3, type COMMUTE /CP=3 Enter
<code>/CT=M or D or L</code>	Sets the connection type to M for modem, D for direct connection, or L for LAN (local area network). For example, to set your connection type to LAN, type COMMUTE /CT=L Enter

Continued

Option	Description
/DPW= password	<p>Sets the default password to the word you enter (up to 10 characters). Leaving the password blank after the equal sign (=) is the same as turning off the Default Password option. For example, to set your default password to "JOAN," type</p> <p>COMMUTE /DPW=JOAN <input type="button" value="Enter"/></p> <p>To turn off the default password option by making it blank, type</p> <p>COMMUTE /DPW= <input type="button" value="Enter"/></p> <p>This option applies only to the PC that gives control.</p>
/DRD	<p>Leaves your PC waiting for a call after a session. It is the same as selecting Wait for Another Call in the Security Settings dialog box. This option applies only to the PC that gives control.</p>
/DR=A or B or AB or N	<p>Specifies which of your floppy drives the controlling PC is allowed to use during a session: A for drive A:, B for drive B:, AB for both, or N for none. This option applies only to the PC that gives control. This option applies only to the PC that gives control.</p>
/IA=n	<p>Sets the inactivity timeout period for automatic disconnect in minutes, from 0 to 60. Set the option to 0 for no automatic disconnect. Add 128 to this setting to skip the normal 10-second delay when a session starts. This option applies only to the PC that gives control.</p>
/L=A or M	<p>Selects the Auto-Login option (A) or Manual Login option (M). This option applies only to the PC that gives control.</p>
/LK=ON or OFF	<p>Allows (ON) or does not allow (OFF) the controlling PC to lock your keyboard during a Commute session. In Commute, choose Security from the Configure menu to see the current setting. This option applies only to the PC that gives control.</p>
/MA=string	<p>Sets the modem answer string. If this or another modem command string includes a space, enclose the entire string in quotation marks (" "). For example, to set the answer string to AT S0=2^M, type</p> <p>COMMUTE /MA="AT S0=2^M"</p>
/MD=string	<p>Sets the modem dial string.</p>
/MH=string	<p>Sets the modem hangup string.</p>
/MI=string	<p>Sets the modem initialization string.</p>

Continued

Option	Description
/NA= name	Sets the Commute user name.
/NE	No expanded memory. With this option, Commute doesn't take advantage of expanded memory for buffers or swap files.
/NL	No LAN. Prevents the LAN driver portion of Commute from loading into memory. Use this option if you're not using a LAN connection and want to conserve about 5K of memory.
/NOC	No compression of graphics. Prevents screen compression in graphics mode during a session. This can save memory usage, but is slower.
/NU	No upper memory blocks. Prevents Commute from loading into the upper memory blocks (between 640K and 1M in RAM). Use this option if you want to save that memory for another program.
/NX	No XMS extended memory. Prevents Commute from using available XMS extended memory for buffers or swap files.
/PR=ON or OFF	Allows (ON) or doesn't allow (OFF) the controlling PC to use your printer during a Commute session. This option applies only to the PC that gives control.
/R or /RL	<p>Loads Commute memory-resident to wait for a call—you'll be ready to <i>give</i> control to, or <i>take</i> control of, a PC that calls in. This is the same as choosing Wait for Any Caller in the Call Manager. A PC user who chooses Call and Take Control can take control of your PC, and a user who chooses Call and Give Control can give control to your PC.</p> <p>If you use a memory manager, you do not need to use the load high command to load Commute resident in high memory. Commute automatically uses available high memory when resident.</p> <p>Adding an L to the option (/RL) is the same as choosing Wait from Call List in the Call Manager.</p>

Continued

Option	Description
/RD	When another Commute user has taken control of your PC, this option reboots your PC as soon as the session ends. As long as your AUTOEXEC.BAT file does not contain the /R option (to load Commute memory-resident and wait for a call), this option makes sure your PC is not accessible after a session ends. This is the same as selecting Reboot Immediately in the Security Settings dialog box. This option applies only to the PC that gives control.
/RG or /RGL	<p>Goes memory-resident to wait for a call, ready to give control to a PC that calls in. This is the same as choosing Wait for Any Caller in the Call Manager, except that a PC user cannot call and <i>give</i> control to you.</p> <p>Add an L to the option (/RGL) to wait only for callers that are in your Give Control list. This is the same as choosing Wait from Call List, except that a PC user cannot call and <i>give</i> control to you.</p>
/RT	Loads Commute memory-resident to wait for a call, ready to take control of a PC that calls in. Any PC user who chooses Call and Give Control can connect with your PC and give control to you.
/SMC	Slow modem communication. Slows down the speed at which your PC communicates with the modem. This can fix timing problems if your PC is faster than your modem can handle.
/SVD	Special video display. Very rarely, some monitors exhibit a problem with distorted colors or an incomplete video display. Try this option if you see either of these problems.
/U	Stops waiting for a call and unloads Commute from memory, along with any other memory-resident programs loaded after Commute. This is the same as choosing Unload from Memory from the File menu.
/WR	This option applies to your PC when giving control. It restarts (reboots) your PC two minutes after a session ends. During those two minutes, the PC remains waiting for a call. This option allows the other PC an opportunity to reconnect with your PC in case the connection is accidentally broken. This is the same as selecting Reboot in Two Minutes in the Security Settings dialog box.

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Commute Technical Information

Here's what you'll find in this chapter:

- **Video Standards** explains what types of video graphics standards Commute supports and how it translates among them.
- **Memory Management** explains how Commute uses memory and how you can conserve memory when running Commute.

Video Standards

Commute supports a variety of video standards: monochrome, CGA, EGA, 640x480 (normal) VGA, and 800x600 VGA, up to 16 colors. Commute also automatically translates between differing video standards. Sometimes Commute has to shrink a screen image, however, because you may not have the proper hardware to duplicate the other PC's screen.

For example, if your PC has a CGA screen and you take control of a PC with a VGA screen, a graphics program like Windows looks slightly distorted. The reason is that Commute has to take 480 lines of video information (VGA) on the other screen and translate it into just 200 lines (CGA) on your screen. The Screen Options command allows you increase performance by adjusting this incoming video information when you take control of another PC. See "Screen Options" in the *Working in a Commute Session* chapter.

Memory Management

Commute will automatically load itself into the upper memory blocks of RAM between 640K and 1M, if available, instead of using conventional memory (0K to 640K). This requires that you have a 386 or higher processor and a memory manager such as QEMM or 386MAX. If you use a memory manager, do not use the load high command to load Commute resident in high memory. Commute automatically uses available high memory when resident.

For buffers and swap files, Commute can also take advantage of expanded memory, driver version 4.0 or higher; or extended memory (XMS), driver version 2.0 or higher. If you have an earlier version (or none), Commute uses conventional memory only.

QEMM Users

Do not use Stealth mode with Commute. Doing so may designate some reserved areas of video memory as available or remappable. Commute uses these areas and Stealth mode could disable a needed Commute area.

Saving Memory with COMMSML

COMMSML is a version of Commute that uses a smaller portion of memory when resident. COMMSML uses more memory when a call is answered, but when the session is over, returns to its smaller state. If you want to set up Commute on your PC to wait for a call, but you don't have any upper memory blocks or very much free conventional memory, use COMMSML. However, do not use COMMSML if you want to run Windows.

You can use COMMSML under the same circumstances you would use Commute to wait for a call (as described throughout the manual). For example,

- From DOS, type

COMMSML

or

COMMSML /R

Commute loads itself memory-resident to wait for a call, as if you had chosen Wait for Any Call from the Call Manager.

NOTE COMMSML removes any applications active when a call is received. These applications will not be available during the Commute session. When the session is finished, these applications are restored. Because COMMSML starts a DOS shell when a session begins, typing EXIT from DOS ends the session.

For information on using Commute with other memory-resident programs, see the *Memory-Resident Programs* chapter.

Troubleshooting Commute

This chapter contains possible solutions to problems you may encounter while using Commute. Because telecommunications and remote-control computing are complicated, a variety of common problems can occur. The most common is improperly connected modems, cables, and networks. If you can't connect with another PC, first check your cables, modem, or LAN connection.

Here's what you'll find in this chapter:

- **Modem or Direct Connection** gives suggestions for problems with a modem or direct connection session.
- **Memory and Files** gives suggestions for problems with missing files or not enough memory.
- **During a Session** gives suggestions for problems that occur after successfully beginning a Commute session.
- **Hotkey** gives suggestions for problems with hotkey conflicts.
- **Windows** gives suggestions for problems with using Windows in a Commute session.

Please check to see if the problem you are experiencing is discussed in this chapter before calling Technical Support. If you can't find a solution, call our technical support line. See the *Central Point Software Registration and Support Card* for details.

Modem or Direct Connection

Commute doesn't dial, or a message says there is no answer from the modem.

This problem generally means that data is not reaching your modem. Several things could cause this problem:

Cause: Your connection type setting may be incorrect.

Solution: Change the connection type setting to Modem.

Cause: The COM port setting in Commute may be incorrect.

Solution: Change Commute's COM port setting to the port your modem is attached to. Make sure Commute is not waiting for a call when you change the COM port setting.

Cause: The modem or cables may not be connected properly.

Solution: If your modem is an internal modem, check to make sure the modem is seated properly in its expansion slot. If the modem is external, check the serial cable connection at both the PC end and the modem end. Check the telephone cord connection. Make sure the modem power switch is on.

Cause: The baud rate setting in Commute may be incorrect.

Solution: The baud rate setting should be the same as your modem speed (2400, for example) in most cases. If your modem uses data compression, the baud rate should be what your modem manual gives as the DTE/DCE or computer-to-modem rate.

Cause: Your modem may not be fast enough for your PC.

Solution: Try starting Commute with the /SMC command-line option. This slows down communication from your PC to the modem. Timing problems may occur, for example, if you combine a fast 486 PC with an older modem.

Cause: You may have a conflict in the IRQ (interrupt request line) or base port address settings of your COM port.

Solution: Commute uses these default settings:

COM1: IRQ=4, base port address=03F8h

COM2: IRQ=3, base port address=02F8h

COM3: IRQ=4, base port address=03E8h

COM4: IRQ=3, base port address=02E8h

For a PS/2, Commute automatically switches to these default settings for COM3 and COM4:

COM3: IRQ=3, base port address=3220h

COM4: IRQ=3, base port address=3228h

If your COM port uses a different IRQ and base address, edit Commute's setting for that COM port. Choose COM Port from the Configure menu, then choose Edit and enter the new values.

Cause: The modem selected in Commute may be incorrect.

Solution: If your modem brand is not in the Modem List, select the Hayes-compatible 2400 option, then change the Baud Rate setting to match your modem's speed. For more information, see "Selecting a Modem" in the *Changing Commute Options* chapter.

Cause: You may have a faulty serial card.

Solution: If you consistently get a “modem reported error” message, you may have a serial card problem. Certain older serial cards have a faulty 8250 UART chip. Try starting Commute with the /8250 command-line option to fix this problem.

The modem dials, but no connection is made.

This problem has several possible causes:

Cause: The other PC may not be waiting for a call.

Solution: Make sure the PC you’re calling has Commute installed and is memory-resident (waiting for a call). For details, see the *Starting a Session—Waiting for a Call* chapter.

Cause: The other PC may not be waiting for a *modem* call.

Solution: Check the connection type on the other PC. It should be set to **Modem**.

Cause: You may have the wrong number.

Solution: Check to make sure the line you are dialing is connected to a modem and isn’t a voice or fax line.

Cause: Access numbers may be missing from the phone number.

Solution: Make sure you enter any access numbers required for an outside line or long-distance number.

Cause: Telephone line noise could be preventing a good connection.

Solution: Call again later.

The other PC doesn’t respond in a direct connection.

This problem has several possible causes:

Cause: The other PC may not be waiting for a call.

Solution: Make sure the PC you’re calling has Commute installed and is memory-resident (waiting for a call).

Cause: Your connection type setting may be incorrect.

Solution: Change the connection type setting to **Direct Connection**.

Cause: The COM port setting in Commute may be incorrect.

Solution: Change Commute’s COM port setting to the port your modem is attached to. See COM port settings table above if you need to change the IRQ or base port address for a COM port.

Cause: The modem or cables may not be connected properly.

Solution: Ask your computer dealer if your cable is a full null-modem cable. Make sure the cable is securely fastened to the serial port at each PC. For a diagram of pin assignments, see “Using a Direct Connection” in the *Changing Commute Options* chapter.

Modem reports an error while you are trying to make a call.

If your modem reports an error while you are trying to make a call, Commute displays the error in the Commute Call in Progress dialog box. If the error is a one or two-digit number, look up the number in your modem manual to identify the error. If it is a three-digit number, it means the following:

253 Non-numeric response (invalid error code--unknown error)

254 Response code too long (dialing may have been interrupted)

255 No response from modem (may not be connected properly)

Memory and Files

Commute does not go memory-resident to wait for a call.

Cause: You may have started Commute from an application that launches a second command processor—for example, PC Tools Desktop, a menuing application, or Windows.

Solution: When you want to wait for a call, start Commute from the DOS prompt or from your AUTOEXEC.BAT file.

A “not enough memory” message appears.

Cause: Commute needs more memory to load resident, start a session, or transfer files.

Solution: Free up memory by removing TSRs (terminate-and-stay-resident, or memory-resident programs). Do this by typing REM in front of commands that load memory-resident programs in your AUTOEXEC.BAT file. If you are using a modem or direct connection, you can also start Commute with the /NL option (no LAN) to decrease Commute’s memory-resident size. If you start Commute with the /NOC command-line option (no graphics compression), Commute uses less memory during a session.

An “error creating swap file” error message appears.

Cause: Commute needs more disk space to use for swap files and temporary storage.

Solution: Make sure you have at least 1 megabyte of free disk space on your hard drive when running Commute.

A program file could not be found.

Cause: A necessary Commute file is not in the proper directory.

Solution: Commute uses three types of files: executable files (such as COMMUTE.EXE, which you can run from the DOS command-line), other necessary system files (such as COMMUTE.MDM), and user-created files (COMMUTE.CSF or COMMUTE.TCL).

Most of these files used by Commute should be in the directory where you installed Commute. If you are running Windows during a session, see the *Using Commute with Windows* chapter for an explanation of where the required files should be.

See the *Using Commute on a Network* chapter for a list of the necessary files and information about running Commute on a network.

During a Session

Your call is rejected.

Cause: Commute expects a different caller.

Solution: The easiest solution is to have the other PC user wait for any caller. If the other PC was waiting from the call list, make sure your Commute user name is in the other user's Give Control list. If the other PC was waiting for a single caller, make sure the other PC user selected your Commute user name from the Give Control list after choosing **Wait for One Caller**.

The password you enter is rejected.

Cause: Commute expects a different password.

Solution: Make sure you entered the password correctly. Check the password in the other PC's Give Control list. If the Password box is blank or if the other PC was waiting for *any* caller, you need to use the default password, which is found in the security settings (choose **Security** from the Configure menu).

A message says you are not allowed to transfer files.

Cause: The other Commute user has restricted your file transfer privileges.

Solution: Have the other user check the Give Control list on the PC you've taken control of to make sure it allows you to send and receive files (see the *Starting a Session—Waiting for a Call* chapter for details).

A message says there is an invalid drive or path name during a file transfer.

Cause: The file or directory you specified doesn't exist, isn't in the specified directory, or was spelled incorrectly.

Solution: If the file is on the other PC, use the DIR command at the DOS prompt to locate it. If the file is on your PC, choose **Look at Your PC** from the Session Menu and then use the DIR command to locate it. If the directory does not exist, transfer the file to a directory that *does* exist.

The directory you're transferring the files into (the path name that you entered in the file transfer dialog box) must already exist. However, if you have selected the Include Subdirectories option in the file transfer dialog box, then any underlying subdirectories are created for you automatically.

The video display's colors are distorted.

Very rarely, a monitor or video card is incompatible with Commute and the problem may show up as distorted colors on the screen or the screen display may disappear. If you see either of these problems, try starting Commute with the /SVD command-line option.

Hotkey

You can't remember the Commute hotkey.

Solution: Try the default hotkey, **(Alt) (R-Shift)**. If this doesn't work, end the Commute session by rebooting (press **(Ctrl) (Alt) (Del)**). After you confirm your choice, Commute reboots the other PC. Then start Commute and choose **Hotkey** from the Configure menu to see what your current hotkey is.

During a session, another program doesn't respond to a keystroke combination.

Cause: The key combination may conflict with Commute's hotkey.

Solution: End the Commute session by pressing the hotkey and choosing **End the Session**. Then start Commute and change the hotkey in Commute by choosing **Hotkey** from the Configure menu.

You cannot determine which PC screen you're seeing.

Cause: Working with different PCs from your own can be disorienting.

Solution: You can press the hotkey to orient yourself:

- If the Session Manager appears, then you've taken control of another PC.
- If the Chat window appears, you've given control of your PC to someone else.
- If the Call Manager window in Commute appears, then Commute is memory-resident waiting for a call, but you're not in a session.
- If nothing happens, then Commute is not memory-resident and you're not in a Commute session.

Windows

File transfer and Chat don't work in Windows, or Commute doesn't answer a call in Windows.

Cause: You may be missing the Windows TSR Manager.

Solution: Reinstall Commute. When you do, the WNTSRMAN.EXE file is copied into the directory where Commute is installed, and the WNTSR.DLL file is copied to the Windows directory. If installed, the Windows TSR Manager works in the background under Windows to handle file transfer and the Chat window when you've given control to another PC.

The keyboard, mouse, or display doesn't work in Windows.

Cause: The proper driver is missing or not installed.

Solution: Commute automatically switches to enhanced keyboard, display, and mouse drivers when you start Windows in a session. On the PC that will be running Windows, make sure you have the COMMKBD.DRV, COMMDIS.DRV, and COMMMOU.DRV files in the Windows directory. The COMMVXD.386 file should be in the directory where Commute is installed.

If you installed Windows after installing Commute, you should reinstall Commute. The installation program changes your Windows SYSTEM.INI file.

or

Cause: A PS/2 mouse may have been disabled when exiting Windows.

Solution: If you are running on an IBM PS/2 or another computer with a PS/2-type mouse port, and you run Commute after quitting Windows, you may find that your mouse is not responding. If this is the case, use the PC Config **Mouse Options** command to turn off the **Fast Mouse Reset** option, or run Commute with the /PS2 command-line option.

The file transfer and Chat buttons aren't available in the Session Manager under Windows.

Cause: These functions cannot be used during a session when Windows is running on the PC that you're controlling.

Solution: Exit Windows and press the hotkey to see the Session Manager window. Now the buttons should be active.

Windows takes a long time to load during a Commute session.

Cause: Your connection isn't fast enough.

Solution: If your connection is by modem, use modems with higher baud rates at both ends of the connection. The fastest way to use Windows during a Commute session is a LAN connection or a direct connection.

Windows runs slowly in a Commute session.

Cause: The screen options need to be adjusted.

Solution: To speed up the response time, you can change how often Commute refreshes the image on your screen or how much color information is sent from the other PC. To do this, see "Changing the Screen Options" in the *Working in a Commute Session* chapter.

Part 4

Desktop Accessories

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About Desktop Accessories

PC Tools Desktop Accessories is a complete desktop organizer that enables you to perform a variety of useful tasks. You can access Desktop Accessories from PC Tools Desktop, or run the program as a standard application, or install it as a memory-resident program.

The Desktop Accessories consist of the following applications:

Notepads	A simple word-processing application that allows you to write notes and short reports to yourself or to co-workers.
Outlines	This application helps you organize your ideas before writing reports and memos. It can also produce a list of the main ideas included in a longer report.
Databases	Using dBASE-compatible file formats, this application helps you organize and manage information. It provides sorting capabilities and lets you access and update information in a variety of ways. On a network, multiple users can view a database at the same time.
Appointment Scheduler	In addition to an appointment calendar with task lists and alarms to remind you of important events, this application lets you run programs at a specified time. Groups can be created and group appointments set. This is a particularly useful feature in a network environment.
Modem Telecommunications	Use your computer to send faxes, order merchandise, or communicate with users around the world with this application and a modem attached to your PC.
Electronic Mail	Access electronic mail on either MCI Mail, CompuServe, or EasyLink without learning complicated data transmission settings.

Fax Telecommunications	Send and receive fax messages through a fax board in your computer or, if you are on a network, through a fax board in any computer on the network.
Macro Editor	If you are tired of typing a long series of keystrokes to perform a repetitious task, this application will make your life easier. It allows you to assign a series of keystrokes to a single key or key combination.
Clipboard	A temporary storage space for transporting information between applications using simple cut, copy, and paste commands.
Calculators	Your choice of an algebraic, financial, programmer's (hex), or scientific calculator. Instead of searching through your desk drawers for a calculator, use Desktop.
Utilities	This set of tools allows you to customize the hotkeys used in Desktop, display an ASCII character table, and unload Desktop Accessories if it was installed memory-resident.

Starting Desktop Accessories

Here's what you'll find in this chapter:

- **Starting Desktop Accessories** explains how to start Desktop Accessories from PC Tools Desktop.
- **Previous Desktop Manager Users** explains the differences between Desktop Accessories and the Desktop Manager program you used in earlier versions of PC Tools.
- **The Desktop Accessories Menu** explains how you have access to the Desktop Accessories menu at all times in Desktop Accessories.
- **Desktop Accessories Application Windows** explains how to open new application windows, and how to determine the maximum number of windows you may have open at one time.
- **The System Control Menu** explains how to activate the System Control menu.
- **Changing Window Colors** explains how to customize the color configuration for any application window.
- **Switching the Active Window** explains what an active window is and how to move among open windows.
- **Moving a Window** explains how to alter the position of a window.
- **Resizing a Window** explains how to increase or reduce the size of a window.
- **Maximizing Window Size** explains how to instantly expand the active window to full-screen size.
- **Restoring Window Size** explains how to revert a full-screen window's size back to its original size.

Starting Desktop Accessories

The most convenient way to use the Desktop Accessories programs is to start them from PC Tools Desktop.

- ▶ Pull down the Accessories menu and choose the program that you want. The Desktop Accessories program must be installed memory resident, to take advantage of the following features:
 - Set alarms in the Appointment Scheduler to remind you of meetings or events even while you use other programs.
 - Access the Desktop Accessories applications from within any program.
 - Use the Clipboard to copy and paste text or extended ASCII characters into other applications.
 - Automatically send or receive electronic mail without interrupting your work in other programs.
 - Use the Autodialer to dial a phone number appearing in any location on the screen.
 - You can access the Desktop Accessories applications from any program by using the hotkey combination. This is useful if you are not using PC Tools Desktop but want to take advantage of the Desktop Accessories applications.

NOTE If you have been using Desktop Manager in previous versions of PC Tools, you can start and use the programs as you are accustomed to. See "For Desktop Manager Users" later in this chapter for information.

Starting Desktop Accessories as a Memory-Resident Application

You load Desktop Accessories as a memory-resident program using the Startup Programs command in PC Config or PC Tools Desktop. See the *Configuring PC Tools* chapter in *Part 1 Getting Started* in Volume 1 for more information.

- ▶ Choose **Startup Programs** in PC Config or from the Configure menu in PC Tools Desktop and select **Desktop Accessories** from the list of startup programs.

When you reboot your computer, Desktop Accessories takes a moment to load into memory, then the sign-on screen lists the hotkey used to start it, the current memory available to other programs, and the number of windows you can have open.

Once Desktop Accessories is installed as a memory-resident application, you can open its applications by pressing the **Ctrl** **Spacebar** hotkey combination at any time.

NOTE When Desktop Accessories is installed memory-resident, it cannot be accessed with the hotkey combination while Microsoft Windows is running. When using Microsoft Windows, open Desktop Accessories as a standard application.

Previous Desktop Manager Users

Desktop Accessories is an enhancement of the Desktop Manager program you've used in earlier versions of PC Tools. You can use Desktop Accessories as you are accustomed to either as a memory-resident program or a standard application.

If you want to continue using the Desktop Manager program as you are accustomed to, you can still access the program by typing DESKTOP. In this manual, whenever you see instructions to type DA, you can substitute DESKTOP.

Starting Desktop Accessories as a Standard Application

- From DOS, type

DA **Enter**

NOTE If you are used to typing DESKTOP to start the program, you can still do so.

When you start Desktop Accessories as a standard application, the screen's background displays monthly calendars with the current day highlighted.

Exiting from Desktop Accessories

When you exit from Desktop Accessories, you have the option of having the program remember all the open application windows. You can exit from Desktop Accessories using the System Control menu or by pressing the hotkey combination.

Using the System Control Menu

1. Choose **Close** from the System Control menu.
2. Select the Save Configuration checkbox, if you want.

When this option is selected, Desktop Accessories “remembers” the application windows you have open. The next time you start Desktop Accessories, the same application windows, colors, sizes, and positions appear.

3. Choose **Exit**.

Using the Hotkey

- ▶ Press **Ctrl** **Spacebar**.

Desktop Accessories will remember the application windows you have open. The next time you start Desktop Accessories, the same application windows, colors, sizes, and positions appear.

NOTE If you changed the hotkey combination using the Desktop Accessories Utilities, use the new hotkey combination instead of **Ctrl** **Spacebar**.

Removing Desktop Accessories from Memory

When Desktop Accessories is installed memory-resident, there are two ways to remove it from memory: from the command line or from within Desktop Accessories itself.

NOTE Memory-resident programs should be removed from memory in the reverse order of their installation. Before removing Desktop Accessories, remove any other memory-resident program that was installed afterwards.

Unloading Desktop Accessories from the Command Line

- ▶ From DOS, type

KILL **Enter**

NOTE If PC Tools Desktop, Commute, or Scheduler are installed, they are also unloaded.

Unloading Desktop Accessories within the Program

1. Choose **Utilities** from the Desktop Accessories menu.
2. Choose **Utilities** ▶ **Unload Desktop Accessories**.

Only Desktop Accessories is removed from memory. If PC Tools Desktop is installed, it remains resident.

Using Expanded Memory

When you start Desktop Accessories with the **Ctrl** **Spacebar** hotkey, it automatically loads the overlay file DESKTOP.THM into expanded memory (LIMSPEC compatible), if available, to hold the image of the underlying application. If expanded memory is insufficient or nonexistent, then the image file (or the portion that won't fit in expanded memory) is placed in the DESKTOP.THM file on disk. For example, with a 386-class, VGA system, the DESKTOP.THM file size is 461K; if you have 400K of expanded memory available, Desktop Accessories will load 400K of the overlay into EMS and 61K onto disk.

The EMS memory is freed when you use the hotkey to leave Desktop Accessories. The other Desktop Accessories overlay files do not use expanded memory because these files are permanently allocated when Desktop Accessories is installed and would require permanent use of expanded memory. You must have your expanded memory driver installed in your CONFIG.SYS file before loading Desktop Accessories. Desktop Accessories uses as much expanded memory as it needs and frees up as much as possible when not in use.

Running Desktop Accessories on a Network

If you are setting up Desktop Accessories on a Novell NetWare network, make the PC Tools directory path available to all users, and also use a system login script to define the PCTOOLS environment variable for all users. To create a login script, use the Novell NetWare command SYSCON. See your Novell NetWare documentation for further information on this command.

For example, using SYSCON, create a login script that contains the line

```
DOS SET PCTOOLS="H:\HOME\%LOGIN_NAME"
```

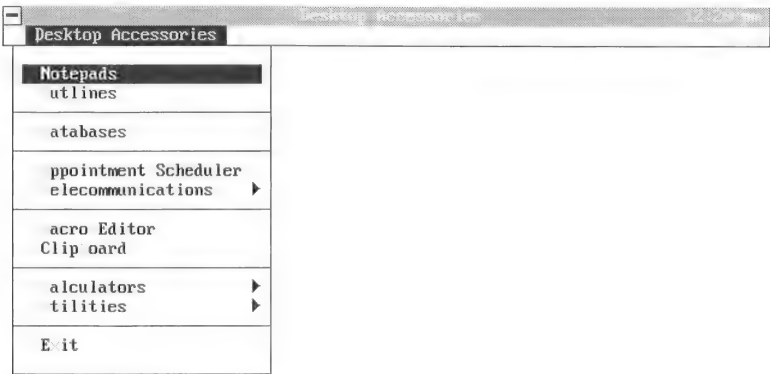
where the directory below "home" has the same name as a user's login name and the user has full write privileges.

You can use the installation program to install the PC Tools programs in a write-protected directory on a Novell NetWare or IBM LAN network server. They can then be run from any station on the network that has access to the files on the server. When installing to a network, Install does not make any modifications to an AUTOEXEC.BAT file or install any applications, other than the requested PC Tools applications, into the Menu window of PC Tools Desktop.

If PC Tools is installed on a Novell NetWare server by a supervisor and if the supervisor sets up the path and environment variable for all users, Install does not need to be run by each station user.

The Desktop Accessories Menu

When you open a Desktop Accessories application, the Desktop Accessories menu appears as the first menu title on the horizontal menu bar. Selecting the Desktop Accessories menu displays a list of the nine Desktop Accessories applications.



Using the Desktop Accessories menu, you can access several Desktop Accessories applications at the same time. When you close all Desktop Accessories applications you return to the PC Tools Desktop window.

NOTE Macros created in the Desktop Accessories Macro Editor application are available for use from within Desktop Accessories and from the DOS command line. Macros cannot be used from within PC Tools Desktop.

Standard Desktop Accessories Function Keys

Each Desktop Accessories application uses the following function keys:

Function Key	Description
F1 Help	Displays the Help window, providing online help.
F2 Index	Displays the Help index, allowing you to quickly move to a specific Help screen.
F3 Exit	Exits from the current Desktop Accessories application. If no application is open, exits from Desktop Accessories and returns to DOS (or the underlying program if Desktop Accessories is installed memory-resident). If a dialog box is open, closes the dialog box.
F9 Switch	Switches the active window. If more than two windows are open, displays the Change Active Window dialog box.
F10 PullDn	Highlights the horizontal menu bar.

In addition to these standard function keys, the **F4** through **F8** keys are assigned special functions within each Desktop Accessories application. See individual application chapters for information about these specialized function keys.

Desktop Accessories Application Windows

When you open a Desktop Accessories application, a new window is opened for that application. The maximum number of Desktop Accessories application windows you can open at once is 15. Depending on the amount of memory available on your system, this number may be lower.

NOTE *If you are using Desktop Accessories in a screen display other than 25 lines, the maximum number of windows you can open at once is 7. See Part 4 General Reference in Volume 1 for information on the command-line options for setting display modes.*

Determining the Maximum Number of Desktop Accessories Windows

The following Desktop Accessories applications allow you to open multiple windows of the same application:

- Notepads
- Outlines
- Databases
- Appointment Scheduler
- Macro Editor

For example, if you are working in a Databases window and choose **Databases** from the Desktop Accessories menu, a second Databases window opens.

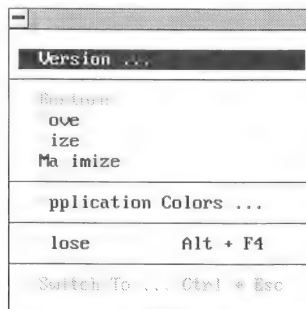
If you loaded Desktop Accessories as a memory-resident application, the copyright panel indicates the maximum number of Desktop Accessories windows allowed.

- If three or more Desktop Accessories windows are open, choose **Switch To** from the System Control menu or press **(F9)**.

The Change Active Window dialog box appears showing the maximum number of windows at the top of the dialog box and listing the Desktop Accessories windows currently open.

The System Control Menu

The System Control menu includes standard PC Tools options (such as information about the version of software you are using) as well as options unique to Desktop Accessories. See the *Working in the PC Tools Environment* chapter in *Part 1 Getting Started* in Volume 1 for more information on the standard PC Tools options in the System Control menu.



From the Desktop Accessories System Control menu, you can control the following window functions:

- Move a window's location on the screen
- Change the size of a window
- Temporarily maximize the size of a window
- Restore a maximized window to its original size
- Change a window's color combination
- Close Desktop Accessories
- Switch between open windows

Using the System Control Menu

The System Control menu is available only when a Desktop Accessories application window is open.



- ▶ Click the close box in the horizontal menu bar.
- or



- ▶ Press **[Alt] [Spacebar]**.

Changing Window Colors

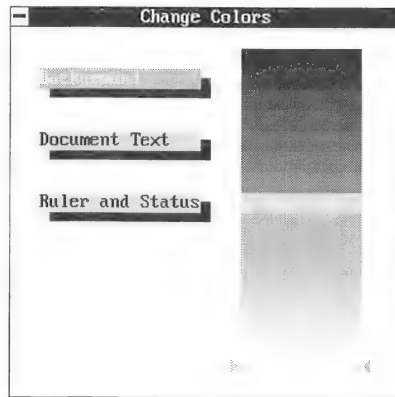
You can set different color configurations for each window opened within Desktop Accessories. Color changes made to a file affect only that file.

TIP In Notepads, Outlines, Databases, and the Macro Editor, you can set the default colors for the entire application using the *Save Setup* command in the application's Controls menu. Saving default color settings prevents you from having to change each application's windows.

In addition, you can globally change colors for the pull-down menus, the horizontal menu bar, the dialog boxes, and the messages boxes by using PC Config. See the *PC Config* chapter in *Part 1 Getting Started* in Volume 1 for information on using PC Config.

1. Choose **Application Colors** from the System Control menu.

The Change Colors dialog box appears, listing options that allow you to adjust the colors within the window.



2. Select the window attribute whose color you want to change.
The arrows indicate its current color.
3. Select a color for the window attribute.
 - ▶ Press **↑** or **↓** to select a color, or click a color.

In most cases, the color change appears beneath the Change Window Colors dialog box as soon as you select a color. This lets you preview the colors before you close the dialog box.

The color choices shown are the ones set in the current PC Config palette. You can change the selection of colors by modifying the palette. If you change color schemes within PC Config, all colors in Desktop Accessories are reset to that scheme. For information on setting the colors in PC Config, see the *PC Config* chapter in *Part 1 Getting Started* in Volume 1.

4. Press **Esc** or **F3** or click the close box to change the window colors and close the dialog box.

Switching the Active Window

More than one Desktop Accessories window can be open at once, but you can only work in one window at a time. The window you are working in is called the active window. The active window is always the top window. Opened windows that are not active are displayed with a dimmed title bar. The horizontal menu bar always shows the commands for the active window.

If part of the window you want to activate is visible on the screen and you are using a mouse:



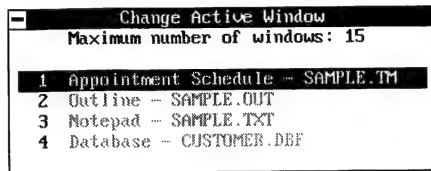
- Click in the window with the mouse.

The selected window moves to the foreground and becomes the active window.

If the window you want to activate is not visible or you are not using a mouse:

1. Choose **Switch To** from the System Control menu or press **F9**.

If only two windows are open, they are swapped. If more than two windows are open, the following Change Active Window dialog box appears, listing the open windows, the application associated with each window, and the name of the file loaded into each window.



2. Select the window you want to make active.



- Press **↑** or **↓** to move the highlight bar to the window, then press **Enter**.

or

- Press the number associated with the window you want to make active.

or



- Click the line of the window you want to make active.

The window you select becomes the active window and appears on top of all other windows.

Moving a Window

You can move the active window to any location on the screen. When you move a window, its position changes but its size does not.



1. Choose **Move** from the System Control menu.
2. Press any combination of **↑**, **↓**, **←**, and **→** to reposition the window.
3. Press **Enter** or **Esc** to leave the window in its new position.

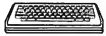
or









1. Click the title bar of the active window in any location except the close box or the maximize (zoom) box.
2. Holding the mouse button down, drag the window to its new location.
3. Release the mouse button.

Resizing a Window

In most Desktop Accessories applications, you can change the size of the window. If the active window does not allow you to change its size, no resize box is available and the **Size** option does not appear in the System Control menu.



1. Choose **Size** from the System Control menu.
If the **Size** option is not available, the window cannot be resized.
2. Press any combination of , , , and  to resize the window.
3. Press  or  to leave the window in its new size.

or



1. Click the resize box in the lower-right corner.
If there is no resize box, the window cannot be resized.
2. Holding the mouse button down, drag the resize box to change the size of the window.
3. Release the mouse button.

Maximizing Window Size

The following applications allow you to expand the active window instantly to full-screen size and back again:

- Notepads
- Outlines
- Databases
- Macro Editor
- Electronic Mail
- Modem Telecommunications
- Fax Telecommunications
- Clipboard

Windows for these applications include a maximize box at the far right of the window title bar.



- ▶ Choose **Maximize** from the System Control menu.

The active window expands to fill the screen.

or



- ▶ Click once on the maximize (zoom) box at the far right of the active window's title bar.

The active window expands to fill the screen.

Restoring Window Size

After you have maximized a window's size, Desktop Accessories allows you to restore it to its original size in one step.



- ▶ Choose **Restore** from the System Control menu.

The active window is restored automatically to its last saved size and position.

or



- ▶ Click once on the maximize (zoom) box at the far right of the active window's title bar.

The active window is restored to its last saved size and position.

Notepads

Notepads is a simple word processor that provides full editing capabilities, allowing you to create, edit, and print standard text files of up to 60,000 characters.

When Desktop Accessories is installed memory-resident, you have instant access to the Notepads word-processing tools from any application. You can open Desktop Accessories using the hotkey, create a Notepads file, close Desktop Accessories, and return to your application without exiting to DOS.

Notepads gives you more flexibility than a line editor. For example, you can quickly and easily create and edit batch files or other types of text files (for example, the AUTOEXEC.BAT or CONFIG.SYS file); search and replace any text you specify; check your document for spelling errors; create headers and footers and define page layouts; add customized printing commands for items such as special fonts and graphics characters; move text between files or applications; and create and send electronic mail directly from Notepads, using MCI Mail, CompuServe, or EasyLink.

Here's what you'll find in this chapter:

- **Starting Notepads** explains how to start Notepads from PC Tools Desktop.
- **Loading Files** explains how to load Notepads files, using the File menu or the Desktop Accessories menu.
- **Editing with the Keyboard** explains how to use keyboard keys to insert or delete characters, move within, and scroll the document.
- **Cutting, Copying, and Pasting** explains how to mark, unmark, cut, copy, and paste a block of text.
- **Deleting Text** explains how to delete all text within a Notepads file.
- **Inserting a File** explains how to merge a selected file with a file currently open.
- **Going to a Line** explains how to move quickly through a file, arriving at a particular line number.
- **Checking Spelling** explains how to check the spelling of a single word, the current screen, or the entire file.
- **Finding Text** explains how to locate a particular character string.
- **Replacing Text** explains how to perform a search for a particular character string, and replace that string with the text you specify.

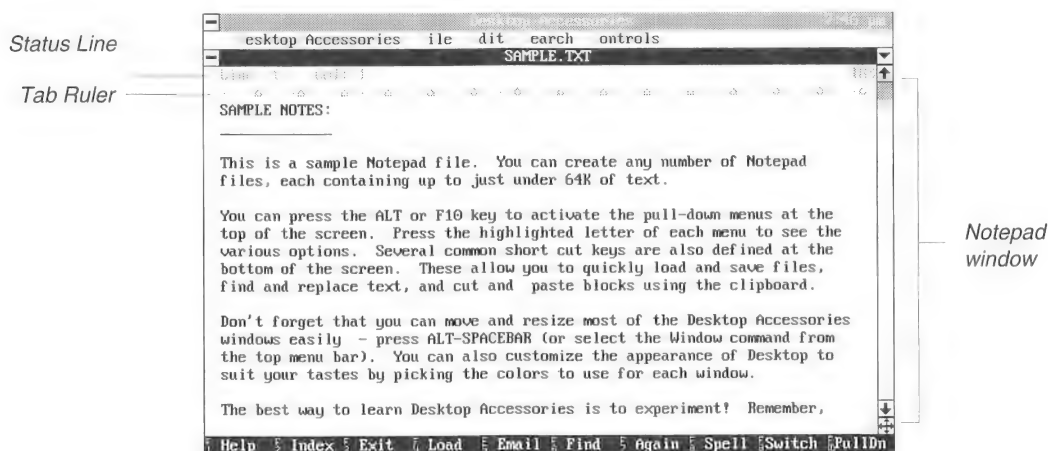
- **Setting Edit Controls** explains how to use edit options such as the Tab Ruler Display, Automatic Indent, Overtyping Mode, Wordwrap, and Control Characters Display.
- **Saving Files** explains how to save a Notepads file without exiting from the file.
- **Sending Electronic Mail** explains the steps necessary for formatting and sending a Notepads file as an electronic mail message.
- **Formatting the Page for Printing** explains how to change margins, set line spacing options, and add headers and footers to the Notepads file you wish to print.
- **Printing Files** explains how to print a Notepads file.
- **Saving Setup Options** explains how to save currently selected printing and formatting options for use with future Notepads files.
- **Exiting from a File Without Saving** explains how to discard changes made to your Notepads file since the file was last saved.

Starting Notepads

1. Choose **Notepads** from the Accessories menu in PC Tools Desktop. The File Load dialog box appears.
2. Load an existing Notepads file or create a new one using the File Load dialog box.
See *Part 1 Getting Started* in Volume 1 or press **F1** for information about the File Load dialog box.

The Notepads Window

The maximum number of Desktop Accessories windows you can open (usually 15), is also the maximum number of different Notepads or a combination of Notepads and other Desktop Accessories applications you can open at once.



Press **(F1)** for more information about the Notepads screen.

In addition to the standard PC Tools window components, the Notepads window contains the following elements:

Status Line: Shows the cursor's line and column position, the file name, and whether you are in insert or overtype mode. Displays only when the Tab ruler display is on. When INS does not appear in the upper-right corner of the window, you are in overtype mode. The status line also displays additional information about operations in progress. For example, the message "Spelling in progress" appears during a spelling-check operation.

Tab Ruler: Sets and changes tab stops if the Tab ruler display is on.

Notepad Window: Contains the text of the active file.

Function Keys

Notepads uses the following function keys in addition to the standard Desktop Accessories function keys described in the *Starting Desktop Accessories* chapter:

Function Key	Description
(F4) Load	Opens the File Load dialog box.
(F5) Email	Sends the active Notepads file as an electronic mail (Email) message.
(F6) Find	Opens the Find and Replace dialog box.
(F7) Again	Finds another match for the text specified in the Find dialog box.
(F8) Spell	Checks the spelling in the active Notepads file.

Loading Files

There are two ways to load Notepad files: using the File menu or choosing Notepads from the Desktop Accessories menu.

When you load or create another Notepads file by choosing **Load** from the File menu or pressing **(F4)**, the currently opened Notepad file closes and the new one takes its place.

NOTE Any changes made to the current file are lost when you load another file with the Load command, so be sure to save changes to your current file before opening another one.

Choosing **Notepads** from the Desktop Accessories menu lets you load a new Notepads file in its own window without closing the current one. You can then work with both files.

1. Choose **Load** from the File menu.

The File Load dialog box appears, containing the names of the existing files, directories, and drives. The files created by Notepads have a default extension of .TXT. Any files in the selected directory that have the .TXT extension appear in the File Load dialog box.

2. Select a file using the list boxes or type a file name in the Filename text box.
3. Choose **Load** to load an existing file or **New** to create a new one.

Editing with the Keyboard

When you want to make changes in your Notepads file, you can use the mouse or special Notepads keystroke functions to move around the file and perform basic word-processing tasks.

1. Make sure that the **Overtyping Mode** option in the Controls menu is turned off.

Overtyping Mode is turned off if no checkmark appears next to it. When **Overtyping Mode** is off, insert mode is used and anything you type is inserted at the cursor. When Notepads is in insert mode, "INS" appears at the right of the tab ruler.

2. Use the keyboard keys listed in the table below to perform basic editing operations.

To	Press
Insert a character at the cursor	Any character
Insert a space at the cursor	Spacebar
Insert a tab at the cursor	Tab
Insert a paragraph (carriage return and line feed) at cursor	Enter
Insert an ASCII graphics character	[Alt] and decimal equivalent on the 10-key pad (for example, [Alt] [1] [5] [6] gives you a British pound symbol--the ASCII character £).
Delete a character under the cursor	[Del]
Erase a character to the left of the cursor	[Backspace]
Move the cursor up one line	[↑]
Move the cursor down one line	[↓]
Move the cursor left one character	[←]
Move the cursor right one character	[→]
Move the cursor left one word	[Ctrl] [←]
Move the cursor right one word	[Ctrl] [→]
Move to the beginning of the line	[Home]
Move to the end of the line	[End]
Move to the beginning of the file	[Ctrl] [Home]
Move to the end of the file	[Ctrl] [End]
Move to the beginning of a window	[Home] [Home]
Move to the end of a window	[End] [End]
Scroll text up one window	[Pg Up]
Scroll text down one window	[Pg Dn]
Scroll up one line without moving the cursor	[Ctrl] [Pg Up]
Scroll down one line without moving the cursor	[Ctrl] [Pg Dn]

Cutting, Copying, and Pasting

You can cut, copy, and paste text from your Notepads file with the help of the Clipboard. The Clipboard stores cut or copied text temporarily so that you can paste it into a file. The text remains on the Clipboard until you replace it with other text or restart the computer. You can edit text on the Clipboard using the Clipboard application (see the *Clipboard* chapter in this part for more information).

Text placed on the Clipboard can be pasted into a different place in the same Notepads file, into a different Notepads file, or into other Desktop Accessories applications. If you installed Desktop Accessories memory-resident, you can also paste text from the Clipboard into underlying applications.

NOTE Up to 4K (about 80-90 lines of text) can be placed in the Clipboard at one time. If you try to cut or copy more text than this to the Clipboard, a warning message appears.

Marking a Block of Text

Before you can cut or copy text, you must first select, or mark, the text to be cut or copied. The marked text is highlighted.



1. Place the cursor where you want the block to start.
2. Choose **Mark Block** from the Edit menu.
3. Use any combination of **←**, **→**, **↑**, and **↓** or **Shift** **←**, **Shift** **→**, **Shift** **↑**, and **Shift** **↓** to mark the block.

or



1. Place the mouse pointer where you want the block to start.
2. Click and drag with the left mouse button to mark the block.
3. Release the mouse button at the end of the selection.

TIP To mark text beyond the boundaries of the window, scroll the screen by moving the mouse beyond the top or bottom of the window.

Cutting Text

When you cut text from a Notepads window, the text is removed from the file and placed on the Clipboard, *replacing* any text currently on the Clipboard.

1. Mark the block of text you want to cut.
2. Choose **Cut to Clipboard** from the Edit menu.

Copying Text

The **Copy to Clipboard** command copies the marked text from your file to the Clipboard without removing it from the file. The copied text *replaces* any text currently on the Clipboard.

1. Mark the block of text you want to copy.
2. Choose **Copy to Clipboard** from the Edit menu.

Pasting Text

When you paste from the Clipboard, the current contents of the Clipboard are copied to the Notepads file at the cursor location without removing it from the Clipboard.

1. Place the cursor where you want to paste the contents of the Clipboard.
2. Choose **Paste from Clipboard** from the Edit menu.

The text remains on the clipboard and can be pasted in an additional location. The contents of the Clipboard do not change until you cut or copy more text or exit from Desktop Accessories. See the *Clipboard* chapter in this part for more information.

Unmarking a Block of Text

If you want to change the marked block of text, you can unmark it and remove the highlighting.

- Choose **Unmark Block** from the Edit menu

or

Click the left mouse button anywhere in the window.

Deleting Text

The **Delete All Text** command deletes all text in a Notepads file and leaves the resulting empty file open.

1. Choose **Delete All Text** from the Edit menu.
2. Choose **OK** in the message box.

The text disappears and an empty Notepads window remains.

Inserting a File

The **Insert File** command merges a selected file with the file you are working on.

1. Place the cursor at the location in the file where you want to insert the new file.
2. Choose **Insert File** from the Edit menu.
The File Load dialog box appears.

3. Select the file to insert and choose **Load**.

The selected file is added to the current file at the cursor position.

Going to a Line

When the **Tab Ruler Display** option is on, the status line above the tab ruler tells you the line number where the cursor is positioned. To move quickly through a file or to move to a particular line, use the **Goto** command in the Edit menu.

1. Choose **Goto** from the Edit menu.
2. Enter the line number.
 - ▶ Type the line number in the Line Number text box.
 - ▶ Click the arrow buttons to select the line number.

NOTE The line numbers displayed on the screen may not correspond to the printed file. The way the file prints is determined by the page layout options you set. See the section “Formatting the Page for Printing” later in this chapter for more information.

3. Choose **OK** to move to the specified line.

Checking Spelling

The following commands check the spelling in your Notepads files:

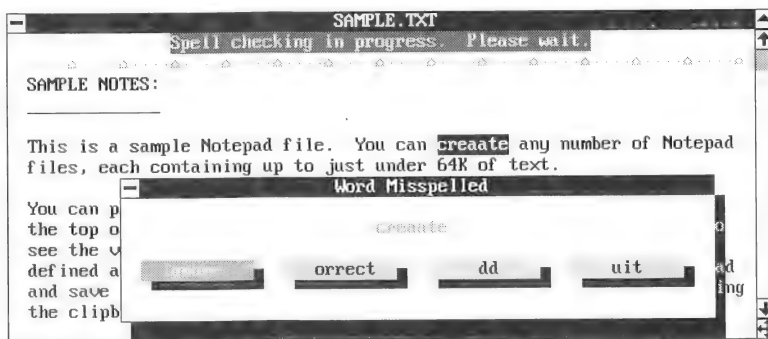
Spellcheck Word: Checks the highlighted word.

Spellcheck Screen: Checks all text visible on the screen.

Spellcheck File: Checks text in the entire file.

1. Choose one of the spelling commands from the Edit menu.

Notepads checks the spelling and, if the tab ruler is on, displays a message in the status line telling you the spelling check is in progress. If it finds a word that is not in the dictionary, the word appears in the Word Misspelled dialog box and is highlighted in the Notepads file.



2. Select one of the options in the Word Misspelled dialog box.

Ignore: Leaves the word as it is and continues the spelling check. Any further occurrences of the same word in this spelling session are also ignored.

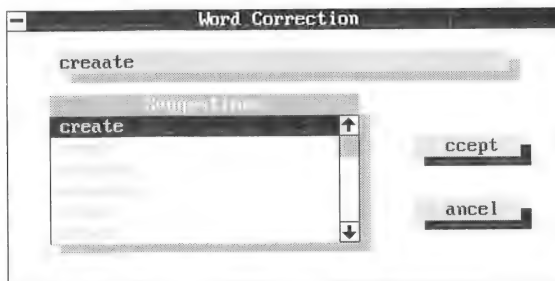
Correct: Displays the Word Correction dialog box with a selection of similar, correctly spelled words.

Add: Adds the word to the dictionary and continues the spelling check. Any words added to the dictionary are treated as correctly spelled words in the future.

NOTE You cannot delete a word from the dictionary once it has been added. Make sure you want to add the word and it is spelled correctly before choosing **Add**.

Quit: Leaves the word as it is, closes the dialog box, and cancels the spelling check.

3. If you selected **Correct**, select the appropriate, correctly spelled word in the Word Correction dialog box or type the correct word in the text box.



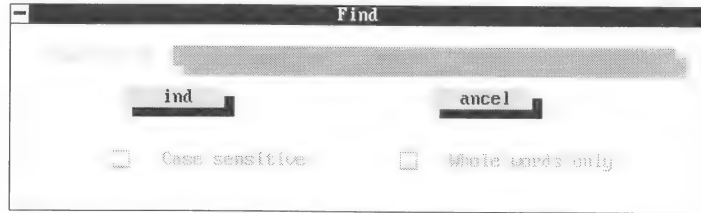
4. Choose **Accept**.

If you chose **Spellcheck Screen** or **Spellcheck File**, the program continues checking. Repeat steps 2-4 for each potentially misspelled word found. When the spelling check completes, the status line message disappears.

Finding Text

The **Find** and **Find Again** commands in the Search menu search the active file, beginning at the cursor's location, for a specified character string.

1. Choose **Find** from the Search menu.

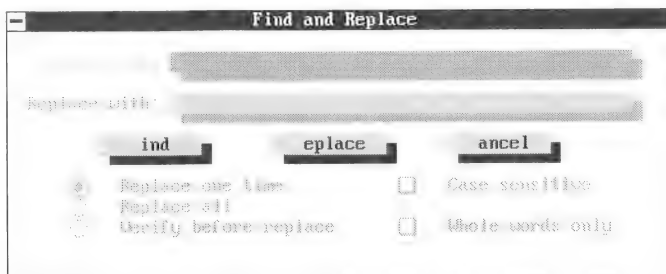


2. Type the text you want to find in the Search For text box.
The text can be up to 44 characters in length.
3. Select the options you want.
Case-Sensitive: Searches for an exact match of the text you type. With this option turned off, text is found regardless of its capitalization.
Whole Words Only: Finds whole words only, not partial words. For example, if searching for "the," Notepad finds "the" but not "theater" when you select this option.
4. Choose **Find**.
Starting at the cursor location, the Notepad file is searched for the specified text. When a match is found, the search stops with the cursor positioned at the beginning of the matching text. The dialog box disappears.
5. Choose **Find Again** from the Search menu or press **(F7)** to find the next occurrence of the specified text.
The search continues for the next occurrence of the text last specified in the Find dialog box. The dialog box does not appear. When another match is found, the search stops with the cursor positioned at the beginning of the matching text.
Use the **Find Again** command or press **(F7)** repeatedly to continue finding additional matches. The search continues to the end of the file; it does not wrap to the beginning of the file.

Replacing Text

The **Replace** command in the Search menu searches the file for a specified character string and replaces it with text you specify.

1. Choose **Replace** from the Search menu or press **F6**.



2. Type the text you want to replace in the Search For text box.
The search string can be up to 44 characters in length.
3. Type the replacement text in the Replace With text box.
4. Select one of the Replace With options.

Replace One Time: Finds and replaces the first occurrence of the search text.

Replace All: Searches to the end of the file starting at the cursor position and replaces all occurrences of the search text with the replacement text.

Verify Before Replace: Searches to the end of the file starting at the cursor position, stopping at each occurrence of the search text and replacing it only when you press **Enter**. Press **Esc** to cancel the search and replace command; press **Spacebar** to skip this occurrence of the search text and look for the next occurrence.

5. Select either or both of the other options.

Case-Sensitive: Searches for an exact match of the text you type. With this option turned off, text is found regardless of its capitalization.

Whole Words Only: Finds whole words only, not partial words. For example, if searching for "the," Notepads finds "the" but not "theater" when you select this option.

6. Choose one of the Replace command buttons.

Find: Finds the text but does not make any changes.

Replace: Replaces the found search text with the specified replacement text.

The Find and Replace dialog box appears until you close it, the search and replace is finished, or you choose **Cancel**.

Setting Edit Controls

To control the appearance of the text as you edit, you can toggle such Control menu options as the Tab Ruler Display, Automatic Indent, Overtyping Mode, Wordwrap, and Control Characters Display. An option is on when a checkmark appears next to it in the Controls menu. All editing controls for the active file are saved when you select the Desktop Format option in the Save File to Disk dialog box.

Tab Stops

Setting tab stops is the best, most accurate way to position text horizontally. Tab settings are set or changed on the tab ruler, which appears across the top of the Notepads window when the Tab Ruler Display option is on. You can toggle the Tab Ruler Display option on or off; its default setting is on. While you are editing tabs, a message appears in the status line.

You can set a maximum of 15 tab stops.

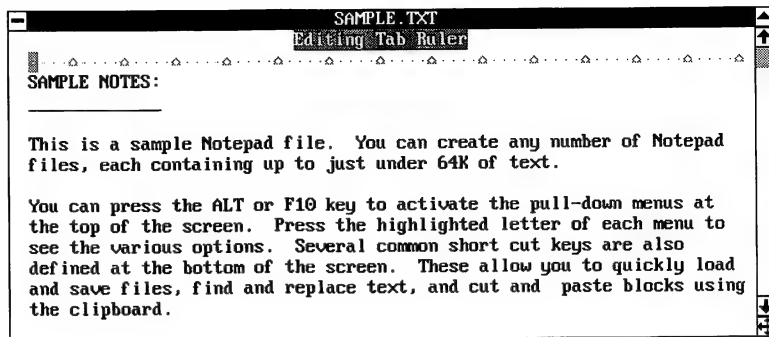
Displaying the Tab Ruler

- Choose **Tab Ruler Display** from the Controls menu.
Choose this command again to turn off the tab ruler.

Editing Tab Stops

1. Display the tab ruler.
2. Choose **Tab Ruler Edit** from the Controls menu.

The cursor is positioned on the tab ruler and the message “Editing Tab Ruler” appears.



3. Position the cursor on the ruler where you want a tab stop.
4. Press **[Ins]** to set a tab.
5. Press **[Esc]** to resume working.

Quickly Setting Evenly Spaced Tabs

1. Display the tab ruler.
2. Choose **Tab Ruler Edit** from the Controls menu.
The cursor is positioned on the tab ruler.
3. Enter any number between 3 and 29 representing the number of spaces between the tab stops.
The default spacing between tabs is 5.
4. Press **[Esc]** to resume working.

Deleting a Tab

1. Display the tab ruler.
2. Choose **Tab Ruler Edit** from the Controls menu.
The cursor is positioned on the tab ruler.
3. Position the cursor on the tab you want to delete.
4. Press **[Del]** to remove the tab stop.
5. Press **[Esc]** to resume working.

Deleting All Tab Stops

1. Display the tab ruler.
2. Choose **Tab Ruler Edit** from the Controls menu.
The cursor is positioned on the tab ruler.
3. Press **[0]** (zero) to delete all tab stops.
4. Press **[Esc]** to resume working.

Overtyping Mode

When **Overtyping Mode** is on, anything you type automatically types over, or replaces, the text at the cursor. When **Overtyping Mode** is off, insert mode is used and anything you type is inserted at the cursor. When Notepad's is in insert mode, "INS" appears at the right of the tab ruler.

- Choose **Overtyping Mode** on the Controls menu or press **[Ins]** to toggle between the two modes.

Control Characters

With **Control Char Display** turned on, Notepad displays the carriage return, tab, and space characters in the text so you can see exact positioning.

- Choose **Control Char Display** from the Controls menu to toggle the setting on or off.

Wordwrap

With **Wordwrap** turned on, you do not need to press **[Enter]** at the end of each line; your text automatically goes to the next line when you reach the right margin. If a word is incomplete at the end of the line, it moves to the next line. Wordwrap occurs just short of the scroll bar in the window, but for printing, the text wraps at the line length defined by the **Page Layout** command in the Controls menu. For example, if the screen displays 75 characters on a line and the page layout is configured with wide left and right margins, the text that prints wraps to fit within the page layout margins and may not look the same as what you see on the screen.

When **Wordwrap** is turned off, you can scroll through your file horizontally by pressing the right mouse button and dragging the mouse to the right or left sides of the window or by pressing **[←]**, **[→]**, **[End]**, and **[Home]**.

- Choose **Wordwrap** from the Controls menu to toggle this setting on or off.

Auto Indent

With **Auto Indent** turned on, text automatically indents to line up with the first character of the previous line. This is useful if you want to indent a paragraph but do not want to press **Tab** at the beginning of each line.

- Choose **Auto Indent** from the Controls menu to toggle this setting on or off.

Saving Files

The **Save** and **Autosave** commands from the File menu offer two different ways to save the changes you have made to your files.

Using the Save Command

Use the **Save** command to save changes you have made to your Notepads file without exiting from the file.

1. Choose **Save** from the File menu.

The Save File to Disk dialog box appears, with the name of the current file in the Filename text box.

To save the file with a different name, enter a new name in the text box.

2. Select the save options.

Desktop Format: Saves the file along with all its tabs, page layout settings, headers and footers, and window colors and sizes. The default for this option is off.

ASCII: Saves only the file's text. This option provides maximum interchangeability with other word processors, but does not save formatting information. The default for this option is on.

Make Backup File: Saves an additional copy of the file with a .BAK extension. The default for this option is on.

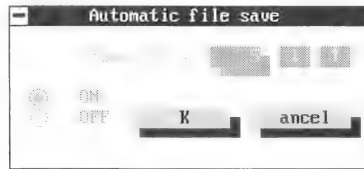
3. Choose **Save**.

Using the Autosave Command

The **Autosave** command instructs Notepads to save your file automatically at designated intervals. Use this command to minimize any data loss from power outages.

Autosave is global to Notepads, Outlines, and the Macro Editor. When **Autosave** is turned on or off in any of these applications, it is turned on or off in all of them.

1. Choose **Autosave** from the File menu.
2. Type a number representing the number of minutes between each automatic save or click the up and down arrow buttons to increment the number.



Five minutes is the default setting.

3. Select **On**.
4. Choose **OK**.

Sending Electronic Mail

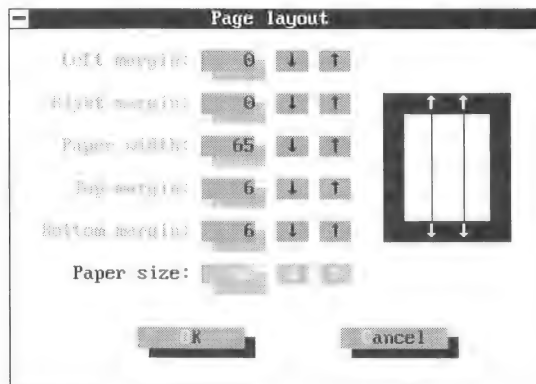
Notepads lets you send the current file as an electronic mail message. You can send the file immediately or store it in a mail outbox directory and send it at the time specified in the Electronic Mail application.

See the *Electronic Mail* chapter in this part for complete information on configuring electronic mail services and schedules.

Before you send a file as an electronic mail message, you can change the margins to suit the requirements of the electronic mail service you are using.

Setting Margins for an Electronic Mail Message

1. Choose **Electronic Mail Page Layout** from the Controls menu.



2. Specify values for the Page Layout options.

Although these options refer to paper, they actually format the message for electronic display. They determine how the text of your message appears within the electronic borders that make up the entire message.

Margins: Sets the number of blank character spaces between the edges of the “paper” and your text. Default settings are: left margin 0 spaces, right margin 0 spaces, top margin 6 lines, and bottom margin 6 lines.

Paper Size: Specifies the “paper” size. The default setting is 66 lines, which corresponds to an 8.5" x 11" sheet of “paper.” This value assumes a setting of 6 lines-per-inch.

Paper Width: Specifies the width of the “paper.” The default setting is 65 character spaces, which allows the text to be displayed in most electronic message formats so that it is easy to read (for example, the ends of text lines don’t wrap). This value assumes a setting of 10 characters-per-inch.

3. Choose **OK**.

Sending a File as an Electronic Mail Message

1. Format the file with the proper header information.

Formatting an electronic mail message is just like setting up an interoffice memo. Depending on the mail service you are using, you need to specify who the message is addressed to (TO:), who it is being sent from (FROM:), and the subject of the message (SUBJECT:). For example, sending a message, using MCI Mail, might look like this:

TO: 111-2233

CC: Edward Lewis

SUBJECT: Desktop Accessories is a great utility!

This version of Desktop Accessories is helpful in my work.

The addresses you use depend on the electronic mail service you are accessing.

Before sending the message, be sure to set the margins using the procedure described earlier in this section.

2. Choose **Send Electronic Mail** from the File menu.

3. Select one of the send options.

Send Immediately: Sends the file immediately, using the electronic mail service configured in the Electronic Mail application.

Send at Scheduled Time: Stores the file in the mail outbox directory to be sent according to the send schedule configured in the Electronic Mail application.

4. Choose **OK**.

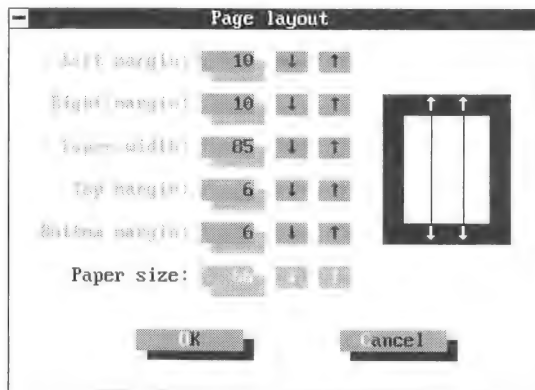
Formatting the Page for Printing

Before you print your Notepads file, you can change the margins, set line spacing options, and create headers or footers with automatic page numbering. When you make these additions to your file, you cannot see them until you print the file or load the .PRT file that is created when you select the **Disk File** option in the Print dialog box.

Defining Page Layout

The **Page Layout** command tells the printer how to format your file on a page.

1. Choose **Page Layout** from the Controls menu.



The right side of the Page Layout dialog box contains a diagram of a page. When you select a page layout option, the section of the page defined by that option is shown in this diagram.

2. Specify values for the Page Layout options.

Margins: Sets the number of blank character spaces between the edges of the paper and your text. Default settings are: left margin 10 spaces, right margin 10 spaces, top margin 6 lines, and bottom margin 6 lines. These settings produce one-inch margins if your printer is set to 10 characters-per-inch and 6 lines-per-inch.

To ensure that headers and footers are printed, the top and bottom margin settings should be set at no less than two lines.

Many printers have pre-set left margins; you may need to print a sample document and make some margin adjustments.

Paper Size: Specifies the paper size you are using. The default setting is 66 lines, which corresponds to an 8.5" x 11" sheet of paper. If you are using legal-size paper (8.5" x 14"), change the **Paper Size** setting to 84 lines. These values assume your printer is set for 6 lines-per-inch; if it is not, use a **Paper Size** setting adjusted to your printer.

Paper Width: Specifies the width of the paper you are using. The default setting is 85 character spaces, which corresponds to an 8.5" x 11" sheet of paper. This value assumes your printer is set for 10 characters-per-inch; if it is not, use a **Paper Width** setting adjusted to your printer. For example, if your printer is set to 12 characters-per-inch, use a **Paper Width** setting of 78 and margin settings of 12 to produce one-inch margins.

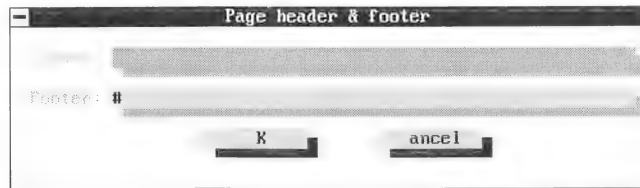
If you are printing on a laser printer, set the top and bottom margins at 2 and the paper size at 60 to ensure proper printing alignment. This is required because laser printers are set up to print within a specified area on a page.

3. Choose **OK**.

Defining Headers and Footers

A header is text printed in the top margin on every page of your Notepads document; a footer is printed in the bottom margin. Headers and footers are not displayed on the screen unless you print the file or load the .PRT file created by the **Disk File** option in the Print dialog box. Headers and footers are centered with the margins you specify.

1. Choose **Header/Footer** from the Controls menu.
2. Type the header and footer text in the text boxes. You can type up to 50 characters in each text box.



The pound character (#) in the Footer text box represents automatic page numbering. To include page numbers in the header, type the pound character in the Header text box.

Delete the pound character if you do not want page numbers. The default setting in Notepads is for page numbers to be printed in the footer, starting with page 1.

To change the starting page number, you need to change the **Starting Page #** option in the Print dialog box.

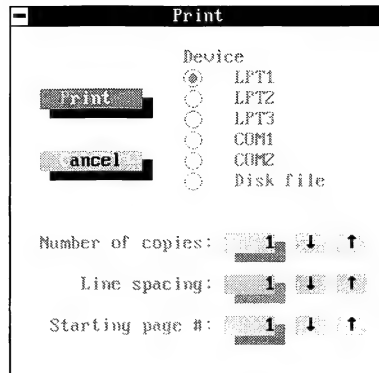
3. Choose **OK**.

Printing Files

Before you print your Notepads file, make sure your printer is hooked up and turned on. Also, select the layout options you want using the **Page Layout** command from the Controls menu (see the "Formatting the Page for Printing" section earlier in this chapter).

You can make use of your printer's formatting capabilities (such as bold, italic, and underline) by inserting printer control macros into your Notepads file. A simple way to send setup commands to your printer is to use the included macro called SETUP. Macro files for the Epson FX-80, IBM Proprinter, Hewlett-Packard Laserjet, and any Panasonic printer are included in Desktop Accessories. See the *Macro Editor* chapter for more information.

1. Choose **Print** from the File menu.



2. Select one of the Device options.

LPT (1, 2, or 3): Selects a parallel printer port. Printer port number 1 is the default.

COM (1 or 2): Selects a serial printer port.

Disk File: Formats and saves the text for printing and writes the file to disk (in the Notepads file's directory) for printing at a later date. The print file name consists of the Notepads file's name with a .PRT extension.

3. Specify the number of copies, line spacing, and starting page number.
4. Choose **Print** to start printing.

If the tab ruler is on, a message appears while the file is printing.

Saving Setup Options

Normally, the settings you select with the Controls and System Control menus affect only the current file. You can use the **Save Setup** option to save these settings so they are applied to every new Notepads file you open.

NOTE The *Save Setup* command globally saves the printing and formatting options for the following Desktop Accessories applications: Notepads, Outlines, and Databases.

- Choose **Save Setup** from the Controls menu.

The settings you have selected in the Controls and System Control menus are saved and the cursor returns to the Notepads file. These settings are used whenever you open a new file.

Exiting from a File Without Saving

You can exit from a Notepads file without saving any of the changes you made since you last saved. This is helpful if you make changes that you decide not to keep.

NOTE *If the Autosave option is turned on, exiting the program using this method discards only those changes made since the last automatic save occurred.*

- Choose **Exit Without Saving** from the File menu.

Outlines

An outline is useful for creating a list of organized ideas. Outlines consist of lines of text, each representing a main point (or headline), followed by more specific subheadlines. The Outlines application lets you use word-processing capabilities to create and edit outlines. For example, you can use Outlines to prepare an agenda for a meeting or to create the skeleton for a speech that you can then load into Notepads and expand.

The advantage of an outlining program over word processing is that each line of text represents a level of the outline. Levels with lower numbers are more important than those with higher numbers, so level 1 is more important than level 2. Outlines in Desktop Accessories allows you to hide selected levels of headlines; for example, you can display only level 1 headlines to get an overview of your main ideas. You can also expand levels to scrutinize details.

Using Outlines to prepare a document saves you time, for example, you can structure information and ideas for easy review. Parts of the outline can be selected for adjustment. You can also view selected parts of the outline by collapsing and expanding subheadlines. And reorganizing the outline is easily accomplished with a few keystrokes.

When you run Desktop Accessories as a memory-resident application, Outlines is available at all times. You have instant access to as many as 15 Outlines windows at once without leaving your current application.

Here's what you'll find in this chapter:

- **Starting Outlines** explains how to start Outlines from PC Tools Desktop.
- **Creating an Outline** explains how to establish, insert and change headline levels.
- **Editing an Outline** explains how to cut and paste selected levels of the outline.
- **Expanding Text** explains how to display any hidden text below the current heading level.
- **Showing Levels** explains how to expand or collapse one or more headline levels for the entire outline.
- **Promoting and Demoting Text** explains how to change the level of importance of selected headlines.

- **Saving Files** explains how to save a Outlines file along with any selected options.
- **Sending Electronic Mail** explains the steps necessary for formatting and sending an Outlines file as an electronic mail message.

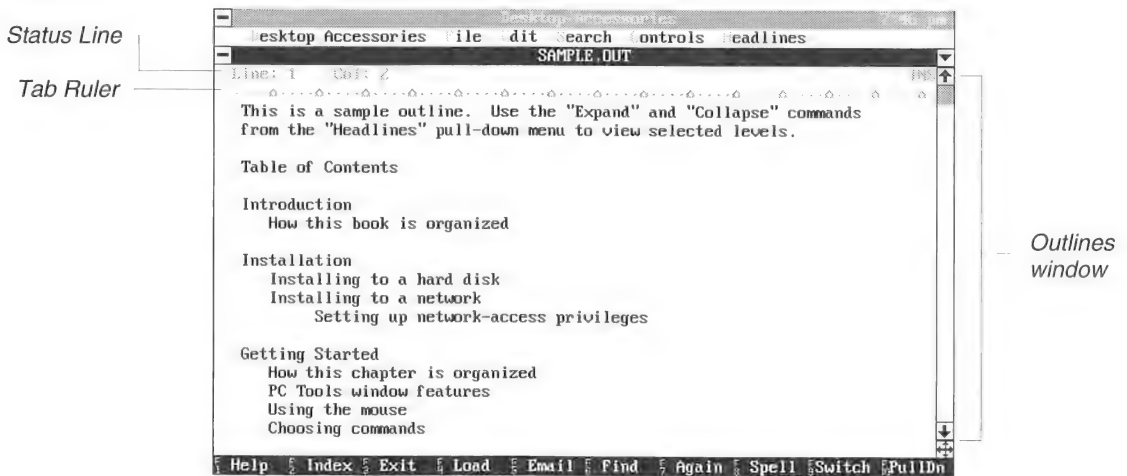
Starting Outlines

1. Choose **Outlines** from the Accessories menu in PC Tools Desktop.
2. Load an existing Outlines file or create a new one using the File Load dialog box.

The files created by Outlines have a default extension of .OUT. Any files in the current directory that have the .OUT extension appear in the File Load dialog box when you start Outlines.

The Outlines Window

A new Outlines window appears each time you choose **Outlines** from the Desktop Accessories pull-down menu, as long as you do not exceed a maximum total of 15 open windows.



Press **[F1]** for more information about the Outlines window.

In addition to the standard PC Tools window components, the Outlines window contains the following elements:

Status Line: Shows the cursor's line and column position, the file name, and whether you are in insert or overtype mode. This line appears only when the Tab ruler display is on. When INS does not appear in the upper-right corner of the window, you are in overtype mode. The status line also displays additional information about operations in progress. For example, the message "Spelling in progress" appears during a spelling-check operation.

Tab Ruler: Sets and changes tab stops if the Tab ruler display is on.

Outline Window: Contains the text of the active file.

Function Keys

Outlines uses the following function keys in addition to the standard Desktop Accessories keys described in the *Starting Desktop Accessories* chapter:

Function Key	Description
F4 Load	Opens the File Load dialog box.
F5 Email	Sends the active Outlines file as an electronic mail (Email) message.
F6 Find	Opens the Find and Replace dialog box.
F7 Again	Finds another match for the text specified in the Find dialog box.
F8 Spell	Checks the spelling in the active Outlines file.

Creating an Outline

Outlines are organized according to topic or headline levels, each level distinguished from the others by the amount of indentation. The main headline (level 1) appears near the left margin, level 2 headlines are indented to the first tab setting, level 3 headlines are indented to the next tab setting, and so on. The indentation is based on the tabs you set, or the Desktop Accessories default tab settings of five spaces.

An outline can be created in a variety of ways. For example, you can

- Enter all level-1 headlines first, without switching between headline levels, then go back and insert level-2 headlines.
- Type in the entire outline and establish levels afterward.

NOTE Because tabs are used to establish headline levels, do not use tabs in the headline text.

Establishing Headline Levels

1. Press **Tab** to establish headline levels as you create an outline.
After the level has been established, you can type or edit the content of the headline. Editing commands in Outlines are similar to those in Notepads.
2. When you finish a headline, press **Enter**.
The cursor moves to the same headline level on the next line.

Changing Levels

- ▶ Press **Backspace** to promote the current headline to a higher level or **Tab** to demote the current headline to a lower level.
You can promote or demote a headline before you type it. To change the level of an existing headline, position the cursor on the first character in the headline before pressing **Backspace** or **Tab**.

Menu options are also available for promoting and demoting headline levels. They are described in the “Promoting and Demoting Text” section later in this chapter.

Inserting Levels

You can insert new levels between existing ones the same way you insert new text.

1. Move the cursor to the end of the line above where you want to insert the new line and press **Enter**.
Any headlines underneath that line move down to create a blank line. The cursor moves to the blank line and is positioned at the same headline level as the one above.
2. Type the new headline.
The headline you insert appears at the same level as the headline on the line above.
To promote or demote the new headline, press **Backspace** or **Tab** before typing the new headline, type the headline, then press **Enter**.

Editing an Outline

The File, Edit, Search, and Controls menus contain commands for working with Outlines files, editing text, and setting document controls. These commands are the same as those in the Notepads application and are described in the *Notepads* chapter.

The Notepads wordwrap feature is not available in Outlines.

TIP The Cut command only works on text that is currently displayed; any text hidden in a collapsed outline is not selected or cut. When reorganizing your outline using the Cut and Paste commands, make sure to expand your text to show all levels of the outline before editing.

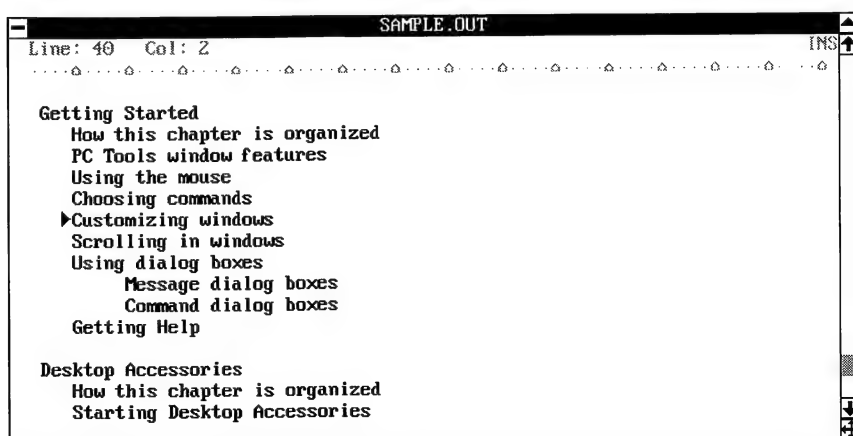
Collapsing Text

To work on a particular section of your outline, collapse the headlines in the other sections by using the **Collapse Current** command. If you want to look at only the most general topics in your outline, you can collapse everything but the main headlines.

Collapsing the Current Level

- Choose **Collapse Current** from the Headlines menu.

The headlines that are subordinate to the headline at the cursor location are collapsed, and the ► symbol appears next to the headline indicating hidden text.



Showing Level-1 Headlines Only

- ▶ Choose **Main Headlines Only** from the Headlines menu.
Level-1 headlines are displayed and all others are hidden. The ▶ symbol appears to the left of any level-1 headlines with hidden subordinate headlines.

Expanding Text

To see more levels of an outline, expand the text so that all hidden text appears. You can expand one section of the outline or you can expand the entire outline.

Expanding the Current Level

- ▶ Choose **Expand Current** from the Headlines menu.
Any headlines subordinate to the headline the cursor is on appear.

Expand All Levels

- ▶ Choose **Expand All** from the Headlines menu.
All headline levels of the outline appear.

Showing Levels

The **Show Level** command collapses and expands one or more headline levels for the entire outline. Use Show Level to display the headlines in an outline that are at or above the level the cursor is on and to hide any headlines below that level. For example, if you choose Show Level while your cursor is on a level-3 headline, levels 1 through 3 are displayed and levels 4 and 5 are hidden.

TIP Because hidden text is not printed, you can use Show Level to create a modified version of an outline for others, print this version, and then expand the outline to its original form before printing a copy for yourself.

1. Place the cursor anywhere in the headline.
2. Choose **Show Level** from the Headlines menu.

All text under the specified level in the outline is hidden, and the ▶ symbol appears next to the headline to indicate hidden text.

Promoting and Demoting Text

You can quickly move levels of your outlines. For example, you can add more details at a particular level of your outline or move some level-2 headlines to level 4 by using the **Promote** and **Demote** commands.

Promoting a Level

Use the **Promote** command to move a headline to a higher level.

1. Place the cursor anywhere in the headline you want to promote.
2. Choose **Promote** from the Headlines menu.

The headline is promoted, and all subheadlines are repositioned accordingly.

Demoting a Level

Use the **Demote** command to move a headline to a lower level.

1. Place the cursor anywhere in the headline you want to demote.
2. Choose **Demote** from the Headlines menu.

The headline is demoted, and all subheadlines are repositioned accordingly.

Saving Files

The **Save** and **Autosave** commands from the File menu offer two different ways to save the changes you have made to your files.

Using the Save Command

Use the **Save** command to save changes you have made to your Outlines file without exiting from the file.

1. Choose **Save** from the File menu.

The Save File to Disk dialog box appears with the name of the current file in the Filename text box.

To save the file with a different name, enter a new name in the text box.

2. Select the save options.

Desktop Format: Saves the file along with all its tabs, page layout settings, headers and footers, and colors and sizes. The default for this option is off.

ASCII: Saves only the file's text. This option provides maximum interchangeability with other word processors, but does not save formatting information. The default for this option is on.

Make Backup File: Saves an additional copy of the file with a .BAK extension. The default for this option is on.

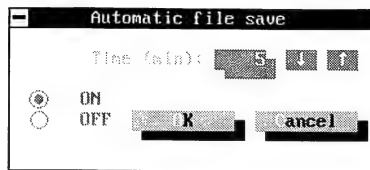
3. Choose **Save**.

Using the Autosave Command

The **Autosave** command instructs Outlines to save your file automatically at designated intervals. Use this command to minimize any data loss from power outages.

Autosave is global to Notepads, Outlines, and the Macro Editor. When **Autosave** is turned on or off in any of these applications, it is turned on or off in all of them.

1. Choose **Autosave** from the File menu.
2. Type a number representing the number of minutes between each automatic save.



Five minutes is the default setting.

3. Select **On**.
4. Choose **OK**.

Sending Electronic Mail

Outlines gives you the option of sending the current file as an electronic mail message. You can choose to send the file immediately or store it in a mail outbox directory and send it at the time specified in the Electronic Mail application.

See the *Electronic Mail* chapter for complete information on configuring electronic mail services and schedules.

Before you send a file as an electronic mail message, you can change the margins to suit the requirements of the electronic mail service you are using.

Setting Margins for an Electronic Mail Message

1. Choose **Electronic Mail Page Layout** from the Controls menu.
2. Specify values for the Page Layout options.

Margins: Sets the number of blank character spaces between the edges of the paper and your text. Default settings are: left margin, 0 spaces; right margin, 0 spaces; top margin, 6 lines; and bottom margin, 6 lines.

Paper Size: Specifies the paper size. The default setting is 66 lines, which corresponds to an 8.5" x 11" sheet of paper. This value assumes a setting of 6 lines-per-inch.

Paper Width: Specifies the width of the paper. The default setting is 65 character spaces. This value assumes a setting of 10 characters-per-inch.

3. Choose **OK**.

Sending a File as an Electronic Mail Message

1. Format the file with the proper header information.

Formatting an electronic mail message is just like setting up an interoffice memo. Depending on the mail service you use, you need to specify who the message is addressed to (TO:), who it is being sent from (FROM:), and the subject of the message (SUBJECT:). For example, sending a message using MCI Mail might look like this:

TO: 111-2233

CC: Edward Lewis

SUBJECT: Desktop Accessories is a great utility!

I like this version of Desktop Accessories.

The addresses you use depend on the electronic mail service you are accessing.

Before sending the message, be sure to set the margins using the procedure described earlier in this section.

2. Choose **Send Electronic Mail** from the File menu.
3. Select one of the send options.

Send Immediately: Sends the file immediately, using the electronic mail service configured in the Electronic Mail application.

Send at Scheduled Time: Stores the file in the mail outbox directory to be sent according to the send schedule configured in the Electronic Mail application.

4. Choose **OK**.

Databases

Databases help you organize, store, and manage information. Storing information in a database makes finding what you need, sorting the information, and producing reports easy and fast. Computer-based databases are particularly powerful because they are so fast and flexible. The Databases application in Desktop Accessories has many features found in standalone database programs.

With Databases, you can write a form letter to customers whose addresses are stored in a pre-existing dBASE database and send it to selected customers without using dBASE. You can also view and print a database in a “phone book” style, one record per line. You can automatically dial phone numbers entered in a database, and share database information with other users on a network.

When you run Desktop Accessories as a memory-resident program, you can bring up a database while working in any other application. This gives you instant access to names, addresses, phone numbers, or anything else you have stored in your database. Because you can have as many as 15 windows open in Desktop Accessories, you can have several databases open at once or have databases open along with other applications. For example, while displaying a database, you can use Notepads to create a custom form file that lets you view the database in different ways.

Here’s what you’ll find in this chapter:

- **Starting Databases** explains how to start Databases from PC Tools Desktop, and how to load a file and modify the file’s records.
- **Running Databases on a Network** explains write privileges associated with multiple users sharing access to the same database.
- **Creating a Database** explains how to create a new database consisting of character, numeric, logical and date fields.
- **Loading an Existing Database File** explains how to load a database file.
- **Using Form Files** describes a form file, and how to use it.
- **Creating a Form File** explains how to create a new form file and how to position text within it.
- **Loading a Form File** explains how to load different form files for different tasks.

- **Editing the Database Structure** explains how to edit, add, or delete fields within a database file.
- **Using Browse Mode** explains how to display multiple records at the same time.
- **Adding New Records** explains how to add records to a database file.
- **Editing the Content of Records and Fields** explains how to move around in the database file and edit records and fields.
- **Searching for Text in the Database** explains how to search for text in all fields, or only in a specific sort field.
- **Going to a Specific Record** explains how to move quickly through a database file, arriving at a particular record number.
- **Transferring Records from the Active Database** explains how to transfer a copy of selected records from the active database to another database.
- **Appending Files to the Active Database** explains how to merge a set of new records into an active database.
- **Deleting Records** explains how to delete records, hide records, undelete records, permanently delete records, and permanently delete a database.
- **Hiding Records and Selecting Hidden Records** explains how to hide a current record and how to display all hidden records.
- **Sorting Database Records** explains how to sort through and reorganize records according to specified fields.
- **Selecting Records to Display or Print** explains how to manipulate selected records which meet specific criteria.
- **Setting Margins for Printing** explains how to set page layout options such as margins, paper size, and paper width.
- **Printing Files** explains how to print records using the current form file or in the format of browse mode.
- **Using the Autodialer** explains how Autodialer can automatically dial a phone number from a database record.
- **Saving Setup Options** explains how the current database settings can be saved and applied to all future databases you open.
- **Understanding Databases** provides definitions on database components and on the three file types associated with Databases: Database Files, Record Files, and Form Files.

NOTE If you are unfamiliar with databases and what they can do, see the “Understanding Databases” section at the end of this chapter.

Starting Databases

1. Choose **Databases** from the Accessories menu in PC Tools Desktop..
2. Load an existing database file or create a new one using the File Load dialog box.

For information on the File Load dialog box, see *Part 1 Getting Started in Volume 1* or press **F1**.

If you select one of the existing database files in the dialog box, the database window appears. Proceed to the section “The Databases Screen” for an illustration of the screen components or to the “Loading an Existing Database File” section, both later in this chapter.

If you create a new file, you must define the structure of the new database, enter information into the records, and customize a new form file.

When you open a file in Databases, the information is presented in a “view-only” mode. To modify a record, choose **Modify Data** from the File menu or press **Enter**. To add a new record, press **F8**. A new, blank record appears and Modify Data is turned on automatically.

Running Databases on a Network

If Desktop Accessories is running on a network, multiple users can view (read) a database at the same time, even if the users do not have write privileges. However, only one network user at a time can open a database with write privileges.

A network user with read privileges only can always read any database, but can never write to one. A network user with write privileges can write to any database unless it is already being written to by another network user with write privileges. In that case, a message states that another user is writing to the database.

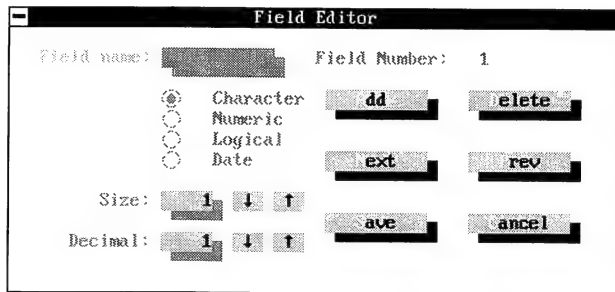
Creating a Database

After creating a .DBF file to contain the database, you need to specify the database structure by entering the name, type, and size of each field that makes up the records. You cannot enter any data in the database file until its structure has been defined. The File Editor dialog box appears as soon as the new file is created so that you can define the fields.

1. Enter a file name in the File Load dialog box and choose the **New** command button.

This creates a new database file with a .DBF extension. The Field Editor dialog box appears so you can define the fields for your new database. Press **F1** for information about the dialog box options.

If you choose **New** without entering a file name, a default file called WORK.DBF is created. A default WORK.DBF file may already exist in the current directory. If it does, a dialog box warns you that the new file will be written over the existing one.



2. Type the name of the first field you want to define in the Field Name text box.

Databases is case-insensitive; field names are converted to uppercase. You may enter a name of up to 10 characters consisting of letters, numbers, or an underscore (_). Blank field names are not allowed. If you type a space in the field name, Databases automatically converts it to an underscore (_) character. For example, if you type FIRST NAME, Databases converts it to FIRST_NAME.

3. Select a field type: character, numeric, logical, or date.

Character Fields: May contain the following characters:

- Letters (A-Z)
- Numbers (0-9) that are used for identification (for example, telephone numbers, numbers in addresses, or social security numbers)
- Special symbols (#, \$, *, &)
- An underscore (_)
- ASCII graphics characters, which you can insert by pressing **[Alt]** along with the ASCII decimal equivalent (for example, pressing **[Alt] 1 5 6** produces the British pound symbol, the ASCII character £).

Each character field can contain up to 70 characters. If you are copying records from dBASE, which allows 254 characters per field, any information in a character field beyond 70 characters are not included.

Numeric Fields: Consist of any number or value used in computations (for example, entries in a checkbook register or tax form). Desktop Accessories does not perform computations on the database, but you can store values in numeric fields for use in dBASE.

Also considered part of a numeric field are a decimal point (.), a plus sign (+), and a minus sign (-) associated with a number. The + and - signs are optional at the beginning of the number, and the position of the decimal place is fixed after you have set it. If you enter too many digits after the decimal point, they are cut off; if you enter too few, zeros are entered for you. The fixed decimal position means that numeric fields displayed in columns have the decimal points aligned. Each numeric field can contain up to 19 characters. The default entry for a numeric field is 0.

Create fields for phone numbers as character fields. Phone number fields created as numeric fields may not work correctly with the Autodialer. See the section "Using the Autodialer" later in this chapter for more information.

Logical Fields: Consist of a single character representing a true or false condition.

- True can be represented as T, t, Y, or y.
- False can be represented as F, f, N, or n.

A logical field can be used to divide the contents of a database file into two groups: one for which the condition is true and another for which the condition is false. For example, a doctor's office record keeper with a database of patient billing records can use T in the logical field to indicate the patient has paid and F to indicate the patient has not paid the bill. The default entry for a logical field is F.

Date Fields: Consist of eight characters that store numeric codes for the month, day, and year in the following form: MM/DD/YY. Date fields assume the 20th century. The default entry for a date field is / / .

Date fields are used only as dates in data manipulation; they cannot be used in dBASE formulas. Although date fields display in the format MM/DD/YY, they are stored in the format YYYYMMDD. For example, a date displayed as 10/12/92 is actually stored as 19921012.

NOTE The dBASE field type "memo" is not supported in Desktop Accessories.

4. Enter a field size in the Size text box.

The field size is determined by the longest item you plan to enter in that field. If the longest city in your database has 20 characters, for example, you need to specify the size of the CITY field as 20 even though some of the cities require fewer than 20 letters.

The size limits vary, depending on field types:

- Character fields allow up to 70 characters. The default field size is set at 1.
 - Numeric fields allow up to 19 characters. The number of characters required in a numeric field consists of the number of digits that are displayed to the left and right of the decimal point, if there is one. The decimal point counts as one character. The default field size is set at 1 with 0 for the decimal.
 - Logical fields allow only one character, so the size is set at 1.
 - Date fields always contain eight characters, so the size is set at 8.
5. If you chose Numeric as the field type, enter the number of decimal places to be included to the right of the decimal point in the Decimal text box.

6. Choose **Add**.

The field structure is created, and the text boxes appear empty again, ready for you to define the next field.

7. Repeat steps 2–6 for each field you want to define.

8. When you have finished adding fields, choose **Save**.

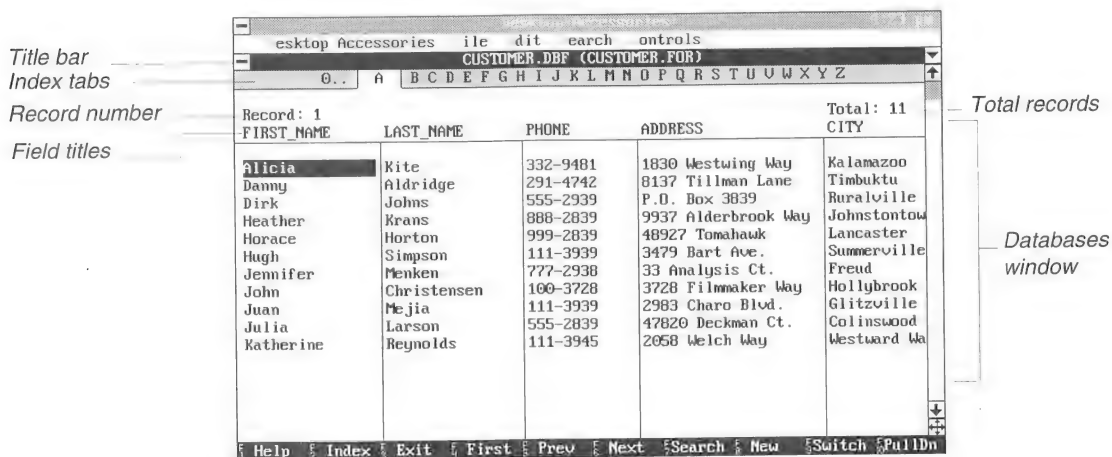
The dialog box closes, and the new database file appears in browse mode (see the “Using Browse Mode” section later in this chapter). The first field in the first record is highlighted, and the cursor is positioned at the beginning of the field.

9. Choose **Modify Data** from the File menu (or press **Enter**), type information into the highlighted field, and press **Enter** or **Tab** to move to the next field.

You can also use a form file to format the display of the newly created database file. See the “Using Form Files” section later in this chapter.

The Databases Window

After you define the fields for a new database or load an existing database, the Databases window appears. The following illustration shows a record displayed in browse mode. The field titles in the Databases window appear in a different format when a form file is loaded. See the “Creating a New Form File” and “Loading a Form File” sections later in this chapter for details on using form files to change the format.



With Modify Data selected, you can enter information into fields, edit existing fields, or add new fields. See the “Editing the Content of Records and Fields,” “Editing the Database Structure,” and “Adding New Records” sections later in this chapter for more information.

Press **F1** for more information about screen features.

In addition to the standard PC Tools window components, the Databases window contains the following elements:

Title Bar: Displays the database file name and the current form file.

Index Tabs: Jumps to a section of the database, as determined by the current sort field. With Modify Data turned off in the File menu, typing a letter or number jumps to the first record whose sort field starts with that character. If you are using a mouse, clicking on the letter or number does the same thing. To switch from letters to numbers, press **0** (zero) or click 0.... To switch from numbers to letters, press **Z** or click ...Z.

Record: Indicates the position of the current record relative to the total number of records displayed. A record’s number changes, depending on the sort order selected.

Total: Shows the total number of viewable records in the database. Hidden and deleted records are not included in this total number.

Field Titles: The names of the fields contained in the current file.

Databases Window: In edit mode, displays one record at a time from the current database file using the selected form file. In browse mode, displays up to 18 phone book-like rows of records (up to 36/42 records if you are working in 43/50-line display).

Function Keys

Databases uses the following function keys in addition to the standard Desktop Accessories keys described in the *Starting Desktop Accessories* chapter:

Function Key	Description
F4 First	Moves to the first record of the current database file. When pressed a second time, moves to the last record of the current database file.
F5 Prev	Moves to the previous record.
F6 Next	Moves to the next record.
F7 Search	Displays the Search Sort Field or Search All Fields dialog box, depending on the search function last performed.
F8 New	Adds a new, blank record to the current database.

Loading an Existing Database File

Before you can add or edit records and fields in an existing database, you must load the file into the Databases application.

- After starting Databases, select a file in the File Load dialog box, then choose **Load**.

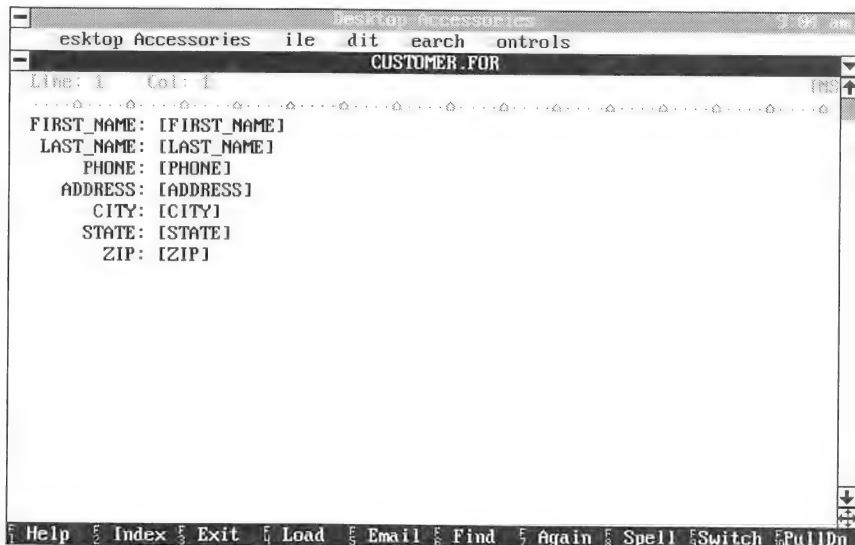
Your file appears in the Databases window in the mode in which it was last displayed (browse or edit) and in a format defined by the last form file used. If you want to display your file in a different format, you must create and load a new form file or load an existing one.

Databases is dBASE-compatible. You can use existing dBASE files or create files in Desktop Accessories to copy to dBASE. You can also copy dBASE records to and from Desktop Accessories database files.

Using Form Files

Desktop Accessories creates a default form file automatically when you create a new database. This default file has the same file name as the database file, but with the .FOR extension. In the default form, the label for each field in the database is listed in sequence and followed by a colon, a space, and the field name in brackets []. The record data appears in the same color as the ruler and status lines, so you can easily locate fields in a form. For most data entry and editing operations, the default form is sufficient.

Form files are Notepads files that function like fill-in-the-blank forms. Each field name is enclosed in brackets [] and placed at the location on the screen where you want the field's data to appear. When you load your database records and display them in edit mode using the form, the information from the database records replaces the field names on the form.



The screenshot shows a Notepad window titled "CUSTOMER.FOR" with a menu bar containing "esktop Accessories", "ile", "dit", "earch", and "ontrols". The text area contains the following form fields:

```
Line: 1 Col: 1
FIRST_NAME: [FIRST_NAME]
LAST_NAME: [LAST_NAME]
PHONE: [PHONE]
ADDRESS: [ADDRESS]
CITY: [CITY]
STATE: [STATE]
ZIP: [ZIP]
```

The status bar at the bottom displays the following menu items: Help, Index, Exit, Load, Email, Find, Again, Spell, Switch, and PullDn.

You can place your field names anywhere in the file, move them around, and insert additional text. The following examples show the same record from a customer list displayed using two different form files.

The first form file arranges the fields like a customer list:

Desktop Accessories File Edit Search Controls

ROLODEX.FOR

Line: 1 Col: 1

[LAST_NAME]

Name: [LAST_NAME], [FIRST_NAME]

Address: [ADDRESS]

[CITY], [STATE] [ZIP]

Phone: [PHONE]

Help Index Exit Load Email Find Again Spell Switch PullDn

This form file formats the database record as follows:

Desktop Accessories File Edit Search Controls

CUSTOMER.DBF (ROLODEX.FOR)

0.. A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Record: 1 Total: 11

Name: Kite, Alice

Address: 1830 Westwing Way

Kalamazoo, IN 49006

Phone: 333 9481

Help Index Exit First Prev Next Search New Switch PullDn

The second form file, created in Notepads, is a form letter using field names from the same database in one or more places.

```

Desktop Accessories  ile  dit  earch  ontrls
LETTER.FOR
Line: 1  Col: 1
May 28, 1991

[FIRST_NAME] [LAST_NAME]
[ADDRESS]
[CITY], [STATE] [ZIP]

Dear [FIRST_NAME] [LAST_NAME]:

We would like to introduce you to the Compumate line of travel computers
from Laser Computer.  Measuring only 10 inches wide by 7.5 inches deep by
1.5 inches high, it is the smallest full function computer that offers:

Full travel standard keyboard
LCD display
Extensive internal software, including:

Help  Index  Exit  Load  Email  Find  Again  Spell  Switch  PullDown

```

When you load the form, the information contained in each database record is inserted in the letter. You can print the letters and send them to the employees whose names and address records were displayed earlier in the employee list form.

```

Desktop Accessories  9:20 AM
esktop Accessories  file edit search controls
CUSTOMER.DBF (LETTER.FOR)
0.. A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
Record: 1                               Total: 11
May 28, 1991

Alicia Kite
1670 Westwing Way
Kalamazoo, MI 49001

Dear Alicia Kite:

We would like to introduce you to the Compumate line of travel computers
from Laser Computer. Measuring only 10 inches wide by 7.5 inches deep by
1.5 inches high, it is the smallest full function computer that offers:

Full travel standard keyboard
LCD display
Extensive internal software, including:

Help Index Exit First Prev Next Search New Switch PullDn

```

Creating a Form File

1. Choose **Notepads** from the Desktop Accessories menu.
2. Type a file name with an extension of .FOR in the File Load dialog box.
The file name should be different than the database file name, since that name is already used for the default form file.
3. Choose **New**.
4. Write your text, using the Notepads editing functions.
All field names must be enclosed in brackets []. The field names must match the field names in the database *exactly* or no record data will be retrieved and displayed in the form. All letters must be uppercase. Do not insert any spaces within the brackets; use underscores (_) to represent spaces.
5. Save and close the Notepads file.
You can edit the form file at any time using Notepads. See the *Notepads* chapter for information on editing functions.

TIP To save the tab positions, color defaults, and page layout options established in your form file, choose **Save** from the File menu and save the form file specifying the Desktop Format.

Positioning Text in Form Files

To place text or fields in specific positions on the form, use a tab. Tabs bind text to them so that subsequent record data is positioned where you want it, even if the record data for a particular field is shorter or longer than the actual field name.

For example, if you have defined a field size smaller than the actual field name (like STATE, which has a field size of two characters), the field name in brackets is longer than the actual data display. However, using a tab after the STATE field positions the ZIP code where you want it displayed.

For example, text on the form looks like this:

[CITY], [STATE] [ZIP]

When the record information appears, the form adjusts to display the information contained in the specified field names and the ZIP fields align.

Tallahassee, FL	32301
Tempe, AZ	85282

Or, if you have defined a field size larger than the actual field name (such as a LAST_NAME field of 15 characters), the record information takes as much room on the line as it needs to display the information even though the field name, LAST_NAME, only takes nine characters.

[LAST_NAME],	[FIRST_NAME]
Frankensteinheimer,	Frances
Norman,	Faye

Setting Up a Form Like the Preceding Example

1. Switch to the Notepads application and create a new .FOR file.
2. Choose **Tab Ruler Edit** from the Controls menu.
3. Press **[0]** (zero) to clear all existing tab stops.
4. Use **[←]** and **[→]** to position the cursor at the point on the tab ruler where you want a tab stop.
5. Press **[Ins]** to set a tab.
Set as many tabs as you need by repeating steps 4 and 5.
6. Press **[Esc]** to exit from the tab ruler edit mode and save the tab settings.
7. Insert the field names at the new tab stops.
All field names must be enclosed in brackets.
8. Choose **Page Layout** from the Controls menu.
9. Set the Top Margin and Bottom Margin options to 0 (zero) and the Paper Size option to 1 and choose **OK**.
10. Choose **Header/Footer** from the Controls menu.
11. Delete the “#” symbol in the Footer text box and choose **OK**.
12. Choose **Save** from the File menu.
13. Select Desktop Format and choose **OK**.

To save the tab positions and page layout options established, you *must* specify Desktop Format. If ASCII format is specified, only the text of your new form file is saved.

Loading a Form File

Databases lets you choose which form file you want to use with a database. You can display a database with one form file while you update your records, for example, then load another form file when you are ready to print.

1. Choose **Load Form** from the File menu.
2. Select a .FOR file from those listed in the File List dialog box, then choose **Load**.

When the form file loads, the window display of the database changes to reflect the new form file.

For help with the File List dialog box, press **F1**.

Remember that form file names must have an extension of .FOR. The default form file, which the database manager creates when you load a database, has the same file name as the database file, but with the .FOR extension. Customized form files should have file names that are different than the database file name.

Editing the Database Structure

You can edit the structure of a database file by changing the way a field is defined (its name, type, size, or number of decimal places). You can also create new fields and delete existing fields.

NOTE You can change a field's type from numeric, logical, or date to character. However, because character fields may contain data that cannot be accepted by other field types, you cannot change character field types to numeric, logical, or date field types.

Make sure Modify Data is selected in the File menu. If this option is not selected, the Edit Fields command is not available.

1. Choose **Edit Fields** from the Edit menu.

The Field Editor dialog box appears, showing you the field attributes. You can change any of these attributes except field number, which indicates a field's position in a record and remains fixed.

Field Editor

Field name: FIRST_NAME Field Number: 1

☒ Character ☐ Numeric ☐ Logical ☐ Date

Size: 15

Decimal: 1

Add Delete

Next Prev

Save Cancel

2. Make any changes you want to the field attributes.
Press **[F1]** for information about dialog box options. For additional information about the field attributes, see the section “The Database Structure” earlier in this chapter.
3. Choose the appropriate Field Editor command button.

To	Choose
Move through the fields	Next or Prev
Change an existing field's name, type, size, or decimal places	Add
Delete the current field	Delete
Add a new field	Next until the Field name text box is empty. Enter the new field name and set the attributes, then choose Add .
Save the changes before exiting from the Field Editor dialog box	Save

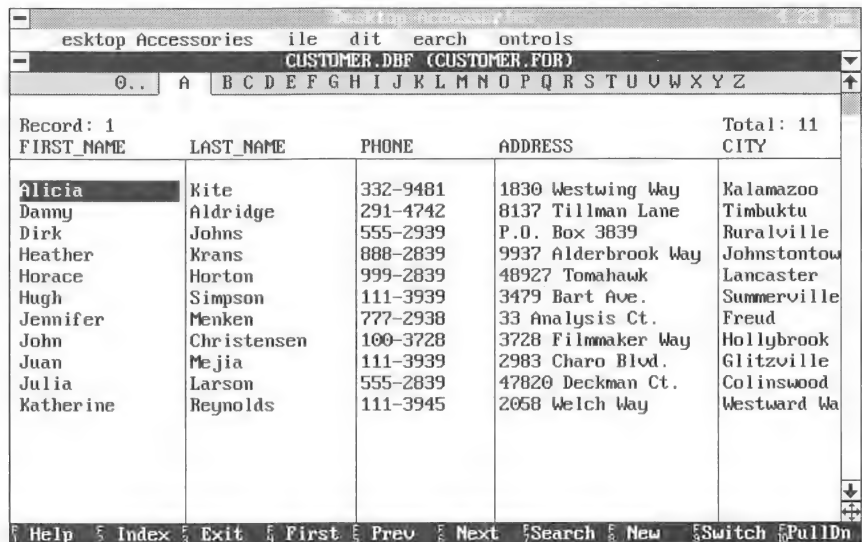
Editing a field name changes the field name in the database file and rebuilds the file's *default* form file, even if a different form file is currently in use. Additional form files must be edited manually to reflect the new field name.

For example, assume you are working in the CUSTOMER.DBF database file and using the form file LETTER.FOR. When you edit the FIRST_NAME field, changing its name to FIRST, the database file is rebuilt and displayed using the default form file, CUSTOMER.FOR. The form file LETTER.FOR does not change automatically; you must open it using Notepads and edit it manually to reflect the field name change.

Using Browse Mode

The **Browse** command in the File menu lets you display multiple records at the same time in a horizontal format, with all fields in a record located on the same line. In the File menu, a checkmark appears next to the **Browse** command when it is selected. All database functions are available in both edit and browse modes.

- Choose **Browse** from the File menu.



FIRST_NAME	LAST_NAME	PHONE	ADDRESS	CITY
Alicia	Kite	332-9481	1830 Westwing Way	Kalamazoo
Danny	Aldridge	291-4742	8137 Tillman Lane	Timbuktu
Dirk	Johns	555-2939	P.O. Box 3839	Ruralville
Heather	Krans	888-2839	9937 Alderbrook Way	Johnstontown
Horace	Horton	999-2839	48927 Tomahawk	Lancaster
Hugh	Simpson	111-3939	3479 Bart Ave.	Summerville
Jennifer	Menken	777-2938	33 Analysis Ct.	Freud
John	Christensen	100-3728	3728 Filmmaker Way	Hollybrook
Juan	Mejia	111-3939	2983 Charo Blvd.	Glitzville
Julia	Larson	555-2839	47820 Deckman Ct.	Colinswood
Katherine	Reynolds	111-3945	2058 Welch Way	Westward Wa

- Choose **Browse** again to switch back to edit mode.

When working in edit mode, only the fields listed in the active form appear. You can change the fields displayed by loading a different form or by switching to browse mode.

To view additional fields that do not fit on the browse mode display, use the scroll bar to scroll up and down or click and drag to move up and down or left and right. You can also select a field by clicking it.



Press **Tab** to move across the screen and bring more fields into view. Press **Shift Tab** to move in the opposite direction. Press **↑**, **↓**, **Pg Up**, or **Pg Dn** to scroll through the database file.

After switching to browse mode, a highlight bar appears in the first field of the current record. When Modify Data is selected, the field containing the highlight bar also contains the cursor, allowing you to edit information. Editing functions in browse mode work the same as in edit mode.

Adding New Records

When you have created the field definitions or loaded an existing database, you can add new records with the **Add New Record** command. Records are added to the beginning of a database file.

NOTE Make sure *Modify Data* is selected in the *File* menu. If this option is not selected, the *Add New Record* command is not available. If you choose **F8** to add a record, *Modify Data* is turned on automatically.

Type your record entries the way you want them to appear and print. For example, capitalize people's names and put periods after abbreviations.

1. Choose **Add New Record** from the *Edit* menu or press **F8**.
Databases adds an empty record at the beginning of the database.
2. Position the cursor on the field where you want to type.
3. Type the information you want into the field.
The database is in overtype mode by default; to change to insert mode, press **Ins**.
4. Press **Enter** or **Tab** to add the data to the field.
The data is saved and updated on the screen automatically, and the cursor is positioned at the beginning of the next field. Pressing **Esc** cancels the edit.
After data is added to the record, the record is placed in sort order in the database.

Editing the Content of Records and Fields

Like an address book, a database keeps a collection of related records that sometimes must be updated. When you want to change the contents of the records and fields in a database, you need to perform basic editing tasks.

Using the Keyboard

Use the keystrokes listed in the following table to move around in a database file.

These keystrokes work in either browse or edit mode.

To	Press
Move to the next field	Tab
Move to the previous field	Shift Tab

Continued

To	Press
Move to the beginning of a field	Home
Move to the end of a field	End
Move the cursor up one line	↑ or F5
Move the cursor down one line	↓ or F6
Move the cursor left one character	←
Move the cursor right one character	→
Move left one word	Ctrl ←
Move right one word	Ctrl →
Move to the beginning of the file or form	Ctrl Home or F4
Move to the end of the file or form	Ctrl End
Move to the beginning of a window	Home Home
Move to the end of a window	End End
Scroll text up one window	Pg Up
Scroll text down one window	Pg Dn
Scroll up one line, without moving cursor	Ctrl Pg Up
Scroll down one line, without moving cursor	Ctrl Pg Dn
Cancel an edit	Esc
Switch from overtype to insert mode	Ins
Turn Modify Data on	Enter

In browse mode, **Home** and **End** perform different functions, depending on where the cursor is located and whether or not Modify Data is selected.

When Modify Data is *not* selected, pressing **Home** moves you to the beginning of a record, pressing **Home** again moves you to the beginning of a window, and pressing **Home** a third time moves you to the beginning of the file. Conversely, pressing **End** in the same pattern takes you to the end of the record, end of the window, and end of the file, respectively.

When Modify Data is selected, and you are in the middle of a field, pressing **Home** the first time moves you to the beginning of the current field. Pressing **Home** again moves you through the records as stated above. Conversely, pressing **End** when the cursor is in the middle of a field takes you to the end of that field. Pressing **End** again moves you through the records as stated above.

Editing Records and Fields

Make sure **Modify Data** is selected in the **File** menu. If this option is not selected, you will be in "view-only" mode and you cannot make changes.

1. Position the cursor on the field you want to edit.
Do not position the cursor on the actual field name.
2. Change the field by typing the information you want in the field.
Editing is in overtype mode by default; to change to insert mode, press **Ins**.
3. Press **Enter** or **Tab** to add the data to the field.
The data is saved, updated, and sorted on the screen automatically, and the cursor is positioned at the beginning of the next field. Pressing **Esc** or **F3** (before pressing **Enter** or **Tab**) cancels the edit.
4. Continue editing the next field.
5. When you finish editing a record, select another record.

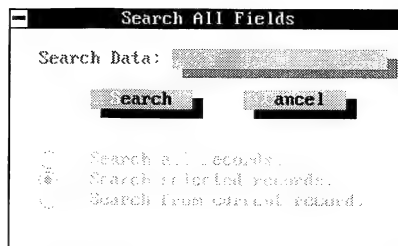
Searching for Text in the Database

Databases provides two **Find** commands that search through your database records to find specified text. The search begins at the first record in the database and proceeds through the last record. When a matching text string is found, the record that contains the specified search character string appears with the cursor positioned at the beginning of its field. The search is case-insensitive; it does not matter whether you enter the character string in uppercase or lowercase.

Finding Text in All Fields

The **Find Text In All Fields** command searches all fields in each record for the specified text. It locates the text in any position of a field. For example, you can find any record that contains a "4" in any position in any of its fields. The command searches the file for the specified text and stops, with the cursor positioned at the beginning of the field in which the character string is located.

1. Choose **Find Text In All Fields** from the **Search** menu.



2. Type the character string you want to find in the Search Data text box.
3. Select a Search option.

Search All Records: Searches for the specified character string in all records, whether displayed, hidden, or deleted.

Search Selected Records: Searches for the specified character string in currently selected records.

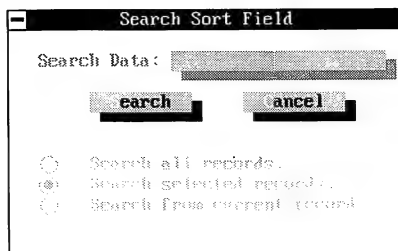
Search from Current Record: Searches to the end of the database for the specified character string, starting at and including the current record.

4. Choose **Search** to begin the database search.
The command searches for the specified text and stops when it finds the first occurrence. The cursor is positioned at the beginning of the field in which the character string is located.
5. Choose **F7** and **Search** again to find the next occurrence of the specified text.

Finding Text in the Sort Field

The **Find Text In Sort Field** command provides a fast way to find a record by only searching the field the database is sorted by. For example, looking up a person's phone number is easy when the database is sorted by last name. The **Find Text In Sort Field** command searches the last sort field you used. To change the sort field, use the **Sort Database** command. See the "Sorting Database Records" section later in this chapter for information the **Sort Database** command.

1. Choose **Find Text In Sort Field** from the Search menu.



2. Type the character string you want to find in the Search Data text box.
3. Select a Search option.

Search All Records: Searches for the specified character string in the sort field of all records, whether displayed, hidden, or deleted.

Search Selected Records: Searches for the specified character string in the sort field of currently selected records.

Search from Current Record: Searches to the end of the database for the specified character string in the sort field, starting at and including the current record.

4. Choose **Search** to begin the database search.

The command searches for the specified text and stops when it finds the first occurrence. The cursor is positioned at the beginning of the field in which the character string is located.

5. Choose **F7** and **Search** again to find the next occurrence of the specified text.

Going to a Specific Record

The record number at the top of the database window tells you which record you are currently displaying. To move quickly through the database or to move to a specified record, use the **Goto Record** command.

1. Choose **Goto Record** from the Search menu.



2. Type the number of the record you want to go to in the Record Number text box or click the arrow buttons to set the number of the record you want.

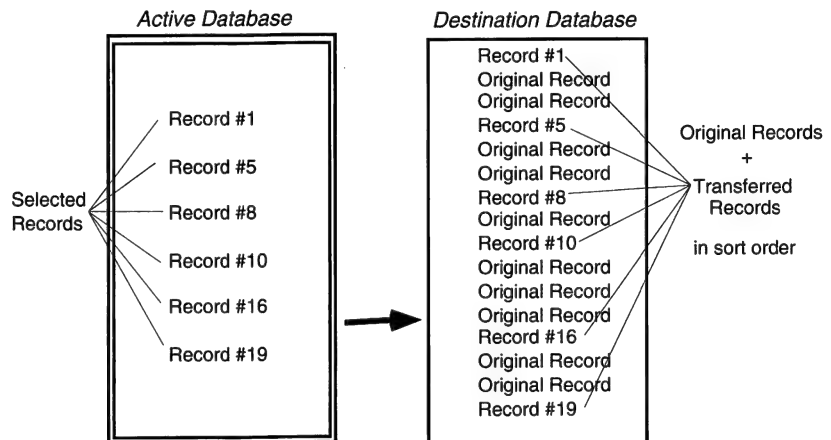
The number of the record is determined by its position in the sort order. The text box shows the number of the current record by default.

3. Choose **Goto** to go to the specified record.

Transferring Records from the Active Database

The **Transfer** command allows you to transfer a copy of selected records from the active database to another database. This lets you transfer similar data from one database file to another without having to re-enter it.

The following diagram illustrates the concept of transferring records.



1. Open the database containing the records you want to transfer to another file.
2. Select the records you want to transfer by choosing **Select Records** from the Edit menu.

This command is explained in the "Selecting Records to Display or Print" section later in this chapter. If you want to transfer all records in the file, skip this step.

3. Choose **Transfer** from the File menu.
4. Select the destination database you want to transfer to in the Transfer dialog box.

5. Choose **Select**.

When you open the destination database, records are sorted automatically, according to the sort order you last selected with the **Sort Database** command.

If the active database has fields that the destination database does not contain, the data in those fields are not transferred.

The original records are not deleted; a copy is transferred. To ensure that the correct records were transferred, open the destination database.

Example

Assume you have one database file containing the names and phone numbers of friends who enjoy windsurfing (WINDSURF.DBF) and another database file containing the names and phone numbers of friends who like to hike (HIKE.DBF). You plan to have a party at a lake where both sports will be offered and you want to print an alphabetical invitation list of the people who might want to attend. There are enough trails to accommodate many hikers, but the lake is small, so you want to invite more hikers than windsurfers.

1. Open the WINDSURF.DBF database.
2. Select only those records that contain the names of friends you want to invite.
3. Choose **Transfer** from the File menu.
4. Select HIKE.DBF as the destination database you want to transfer to in the Transfer dialog box.

The HIKE.DBF database includes the field MAJOR_TRAILS, which is not in the WINDSURF.DBF database.

5. Choose **Select**.

After the records are transferred, your HIKE.DBF database contains the names of all the hikers and windsurfers you want to invite to your gathering. Each record that was transferred from the WINDSURF.DBF database has an empty MAJOR_TRAILS field. An excerpt from your HIKE.DBF file might look like this:

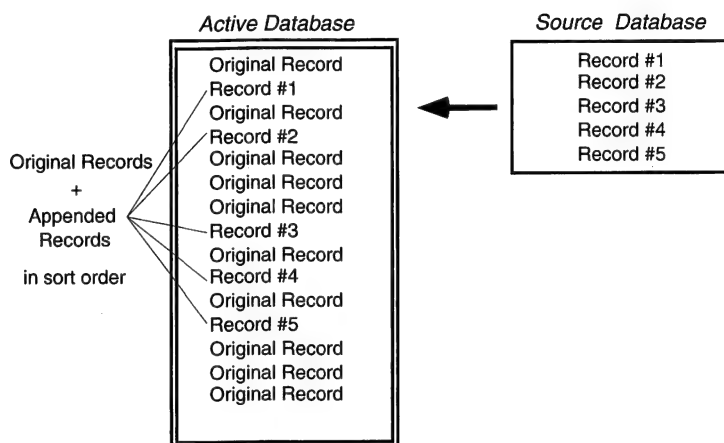
NAME	PHONE	MAJOR_TRAILS
Lynda Banks	555-5394	Pacific Crest
Sandra Bell	555-3577	Appalachian
Lewis Bond	555-6245	
Harry Dean	555-4281	Oregon Coast, John Muir
Arthur Felkey	555-7291	
Jo Gottschalk	555-0242	Appalachian, Florida

Appending Files to the Active Database

The **Append** command allows you to append *all* records from another database to the currently active database.

For example, assume you are the owner of a mail-order business and decide to purchase a new mailing list database. You can open your database, then append the new database to it.

The following diagram illustrates the concept of appending files:



In this procedure, the database that you are appending is called the *source database* and the database you are appending to is called the *active database*.

Make sure **Modify Data** is selected in the **File** menu. If this option is not selected, the **Append** command is not available.

1. Open the database you want to append to (the active database).
2. Choose **Append** from the **File** menu.

The **Append** dialog box appears for you to select the source database.

3. Select the source database you want to append, then choose **Select**.

Records are sorted automatically, according to the sort order you selected with the **Sort Database** command. The original records are not deleted; a copy is appended.

If you have a source database with a field the active database does not contain, **Databases** ignores it and the data in that field is not appended.

Deleting Records

The **Delete Record** command does not delete a record permanently. Instead, the record is marked for deletion and is no longer displayed unless you undelete it. Because the record is still physically in the database, you can easily view it again by using the **Undelete** command. To permanently remove records marked for deletion, use the **Pack Database** command.

Make sure **Modify Data** is selected in the File menu. If this option is not selected, the **Pack Database** command is not available.

The database is designed to have at least one viewable record. If you delete the last record in the database, a message warns you that you are about to delete the last viewable record and asks you to confirm your deletion.

1. Select the record you want to mark for deletion in one of the following ways:
 - ▶ In edit mode, display the record.
 - or
 - ▶ In browse mode, move the cursor to any field in the record.

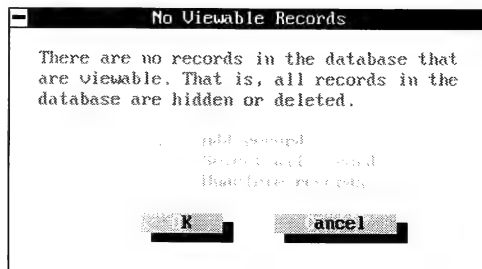
2. Choose **Delete Record** from the Edit menu.

The record disappears from the screen and the next record in the database takes its place.

Deleting or Hiding the Last Record in the Database

When you hide or delete records in the database, you usually have at least one viewable record remaining in the database. However, if you choose to delete or hide all records in the database, a message box asks you to confirm your decision before carrying out the action. If you choose to delete the last viewable record in the database, a dialog box appears with three options.

- ▶ Select an option in the No Viewable Records dialog box and choose **OK**.



Add Record: Adds a new record to the database. The hidden or deleted records remain unchanged.

Select All Records: Makes all the previously hidden records in the database viewable in the order you last sorted them. If you hid the last record in the database, the dialog box appears, with this option selected.

Undelete Records: Makes all the previously deleted records in the database viewable in the order you last sorted them. If you deleted the last record in the database, the dialog box appears, with this option selected.

NOTE To delete a database completely, select the file in the File Load dialog box and choose *Delete* or use the Delete File command in PC Tools Desktop or the DOS *DELETE* command. Be sure to delete all the relevant files connected to the database, including the .DBF, .REC., and .FOR files.

Undeleting Records

If you decide you want to see the records you marked for deletion, or if you made a mistake and marked the wrong records, you can use the **Undelete Records** command to undelete them. The **Undelete Records** command brings back all records marked for deletion; you cannot bring back a single record if multiple records are marked.

- Choose **Undelete Records** from the Edit menu.

All deleted records are added to the database in their previously sorted order.

Removing Deleted Files

Packing a database permanently removes records marked for deletion from the database. No more than 10,000 records can be stored in a database, so it is important to remove unused records regularly to ensure that you have the storage space you need. When you pack a database, the records are stored in the current sort order.

1. Delete the records you want to remove from the database.
2. Choose **Pack Database** from the Edit menu.
A message asks you to confirm the command.
3. Choose **OK**.

A file with the database name and a .DBU extension is created. This file contains all of the records that were in the file before you packed it. If you need to recover records you have packed, assign a new extension to your .DBF file, then change the .DBU extension to .DBF and load this file into Databases.

Hiding Records and Selecting Hidden Records

At times you might not want to display or print all of the records in the database. For example, you might want to print mailing labels for only a few of the customers in a customer database. You can prevent records from being displayed or printed by hiding them. Hidden records remain in the database as invisible entries until you make them viewable again.

Hiding the Current Record

When you hide a record, it remains part of the database but cannot be displayed, printed, or deleted.

NOTE *The database is designed to have at least one viewable record. If you hide the last record in the database, a message warns you that you are about to hide the last record and asks you to confirm your decision. See the “Deleting or Hiding the Last Record in the Database” section earlier in this chapter.*

1. Display the record you want to hide.
2. Choose **Hide Current Record** from the Edit menu.

The current record disappears from the screen, and the next record in the database appears.

Displaying all Hidden Records

- Choose **Select All Records** from the Edit menu.

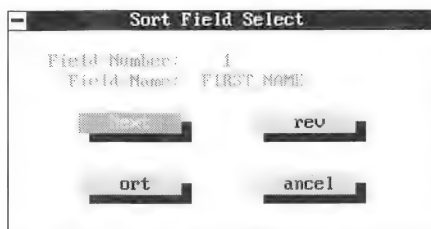
All previously hidden records are displayed in the current database, although the currently displayed record does not change.

Sorting Database Records

The **Sort Database** command allows you to sort through and reorganize records according to specified fields. For example, you might want to use your customer list database to print a mailing list for bulk mailing. Before printing, you need to organize your list according to ZIP codes. After printing, you might want to sort your records alphabetically by last name so you can easily update records as new information becomes available. Sorting determines the order in which the records are displayed and printed, but the physical order of the records remains unchanged.

You can only sort on one field at a time, and the database uses as much of the sort field as possible.

1. Choose **Sort Database** from the Edit menu.



2. Select the sort field in the Sort Field Select dialog box.

If the current sort field displayed in the dialog box is not the one you want, select a new sort field using the command buttons.

Next: Selects the next field name as the sort field. The field numbers and field names change as you select this button.

Prev: Selects the previous field name as the sort field. The field numbers and field names change as you select this button.

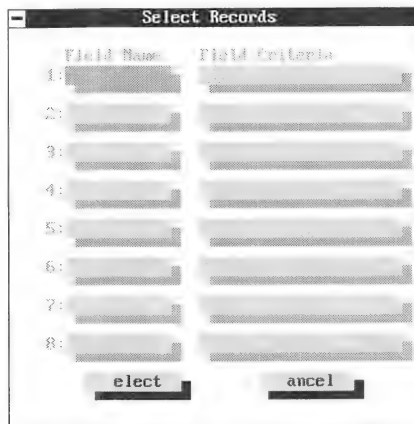
3. Choose **Sort** to sort the database.

A message box tells you to wait while the database is sorted. When the sort is complete, the current record appears in the newly sorted order.

Selecting Records to Display or Print

Desktop Accessories allows you to select which records you want to display and print, based on specified criteria in up to eight fields of the record. This can be very useful if you only want to work with some of the records in your database (for example, if you want to send letters to your New York customers only).

1. Choose **Select Records** from the Edit menu.



2. Specify the selection criteria.

Field Name Text Box: Type up to eight field names for which you will specify selection criteria. For example, you can type STATE if you want to work with records based on criteria in state fields. For a record to be selected, its contents must match the selection criteria in each field specified.

Field Criteria Text Box: Type the selection criteria to be used for each specified field name. For example, you can type “New” for the criteria to be used to search STATE fields and the database is searched for all states containing the character string “New.”

See the “Selection Criteria” section later in this chapter for more information.

3. Choose **Select**.

The database is searched for all fields that match the selection criteria. All records not matching the criteria are hidden.

NOTE *The database is designed to have at least one viewable record. If your selection criteria will cause all the records in the database to be hidden, a message box warns you that the last record in the database is about to be hidden and asks you to confirm your decision. See the “Deleting or Hiding the Last Record in the Database” section earlier in this chapter.*

Selecting vs. Searching

Selecting records is different from searching the database. The **Select Records** command looks for the comparison only at the beginning of a field and goes to the next field if no match is found. The **Search** command, on the other hand, searches the entire field for a match in any position of a field.

Selection Criteria

You can use the Select Records dialog box to list any field in a record and its selection criterion. Up to eight fields and the selection criterion for each may be entered in the dialog box. For each record in the database, each field listed in the dialog box is compared to its selection criterion. If all the fields in a record match the criteria, the record is selected. If any fields in a record do not match the criteria, the record is hidden. For example, if you enter NY as the criterion for the STATE field and New York as the criterion for the CITY field, only records from New York, NY are displayed or printed. Entering one ZIP code as the criterion for ZIP_CODE fields selects all records with the common ZIP code, which is useful for bulk mailings.

NOTE *To specify a date in a date field, use the format YYYYMMDD. For example, to specify a date of March 12, 1992, enter 19920312 in the Field Criteria text box*

Desktop Accessories accepts a wildcard character as a selection criterion that matches any character appearing in the specified field. For example, the ZIP code 97?06 displays 97006, 97106, 97206, and so on.

You can also specify ranges in numeric fields and date fields. For example, here are examples of ranges for ZIP codes:

70000..77777	Matches ZIP Codes from 70000 through 77777.
70..	Matches any ZIP Code whose first two digits are greater than or equal to 70.
..37	Matches ZIP Codes whose first two digits are less than or equal to 37.

You can also specify ranges for fields using letters, like names or cities.

A..F	Matches fields starting with A and going through F.
AA..ASH	Matches fields starting from AA and going through ASH.

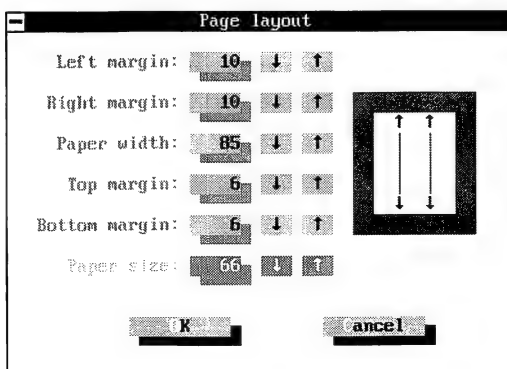
When specifying ranges, you can use uppercase or lowercase letters.

Setting Margins for Printing

Before you print records in your database file, you can tell the printer how to format them on a page by using the **Page Layout** command. Changes you make to the page-layout options do not appear on the screen, but you see them when you print the file.

TIP You can load a form file that inserts each record of your database into a personalized form, such as a form letter, and set up your page-layout requirements in Notepads to print it. After printing, you can load another form file that formats the records for mailing labels and easily change the page-layout options to print the labels.

1. Choose **Page Layout** from the Controls menu.



2. Specify any of the following page-layout options and choose **OK**.

Margins: Sets the number of blank character spaces between the edges of the paper and your text. Default settings are: left margin, 10 spaces; right margin, 10 spaces; top margin, 6 lines; and bottom margin, 6 lines. These settings produce one-inch margins if your printer is set to 10 characters-per-inch and 6 lines-per-inch.

To change the margins, type a number in the appropriate text box or click the arrow buttons to increment or decrement the value. A sheet of mailing labels generally uses the following settings: left margin, 8; right margin, 8; top margin, 0; and bottom margin, 0.

Many printers have pre-set left margin settings; you may need to print a sample document and make some margin adjustments.

Paper Size: Specifies the paper size you are using. The default setting is 66 lines, which corresponds to an 8.5" x 11" sheet of paper. If you are using legal-size paper (8.5" x 14"), change the **Paper Size** setting to 84 lines. One-inch mailing labels require a Paper Size setting of 6. These values assume your printer is set for 6 lines-per-inch; if it is not, use a **Paper Size** setting adjusted to your printer.

To change the setting, type a number in the text box or click the arrows to the right of the text block to increment or decrement the value.

When using a laser printer, set the Top Margin, Bottom Margin, and Paper Size to ensure proper printing alignment. See the manual for your printer to determine the printable area on a page.

When printing mailing labels, calculate the **Paper Size** value as follows: add the number of lines in the address, the top margin value for each label, the bottom margin value for each label and the space between each label on the sheet (if any).

Paper Width: Specifies the width of the paper you are using. The default setting is 85 character spaces, which corresponds to an 8.5" x 11" sheet of paper. This value assumes your printer is set for 10 characters-per-inch; if it is not, use a **Paper Width** setting adjusted to your printer. For example, if your printer is set to 12 characters-per-inch, use a **Paper Width** setting of 78 and margin settings of 12 to produce one-inch margins.

To change the setting, type a number in the text box or click the arrows to increment or decrement the value.

When printing from Browse mode, only one width of screen information is printed per sheet, regardless of Paper Width setting. In Edit mode, the full Paper Width setting is utilized.

Printing Files

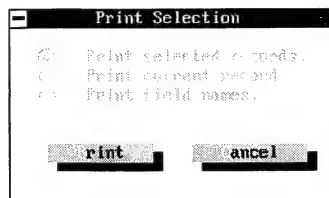
The **Print** command allows you to print the field names associated with your database, your records as they appear in browse mode, or your records as they appear using the current form file.

For example, you can write a form letter and select the records from the database that contain the names and addresses of people you want to send the letter to. Then use the **Print** command to print the letter for each name in the selected records.

NOTE Before you start printing, make sure your printer is connected and turned on. Select the margin settings you want and select the records you want to print (see the "Setting Margins for Printing" and "Selecting Records to Display or Print" sections earlier in this chapter).

Printing Records or Field Names in Edit Mode

1. Choose **Print** from the File menu.



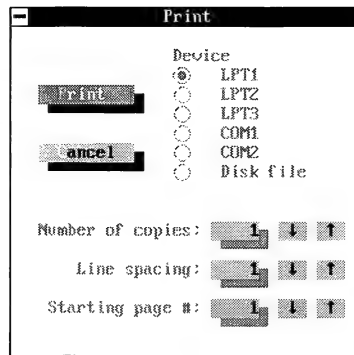
2. Select a print option.

Print Selected Records: Prints only the selected records as they appear in the current form file.

Print Current Record: Prints the currently displayed record as it appears in the current form file.

Print Field Names: Prints the list of field names used in the database. This option is useful when creating forms.

3. Choose **Print**.



4. Select a Print Device option.

LPT (1, 2, or 3): Selects a parallel printer port. Printer port number 1 is the default.

COM (1, 2): Selects a serial printer port.

Disk File: Formats and saves the text for printing and writes the file to disk (in the same directory as the file) for printing at a later date. The print file name consists of the same file name with a .PRT extension.

5. Specify values for number of copies, line spacing, and starting page number.

NOTE The number symbol can be deleted from the form in Notepads. Load the .FOR file into Notepads, choose **Header/Footer** from the Controls menu, tab to the Footer text box, and press **[Backspace]** to remove the symbol.

6. Choose **Print** to start printing.

A dialog box appears while the file prints. Press **[Esc]** at any time to cancel printing.

Printing Records or Field Names in Browse Mode

If you print while in browse mode, the field names appear horizontally across the top of every page, followed by a record on each line, just as they appear on the screen. This is a good way to print a phone list.

1. Choose **Browse** from the File menu.
2. Choose **Print** from the File menu.
3. Select a Print Device option.

These options are described in the previous procedure.

4. Specify values for number of copies, line spacing, and starting page number.

5. Choose **Print** to start printing.

A dialog box appears while the file prints. Press **[Esc]** at any time to cancel printing.

Using Printer Macros

You can make use of your printer's formatting capabilities (such as boldface, italics, and underlining) by inserting printer control macros into your form file. A simple way to send setup commands to your printer for your favorite options, such as font, type size, and printing mode, is to use the included macro called SETUP.

To make your printing task easier, Desktop Accessories supplies you with macros for the Epson FX-80, IBM Proprinter, Hewlett-Packard Laserjet, and any Panasonic printer. See the *Macro Editor* chapter in this part to learn how to add printing commands to your database and use the SETUP macro.

Using the Autodialer

The Autodialer can automatically dial a phone number from one of your records if you have a Hayes-compatible modem attached.

NOTE *If you use the Autodialer feature to dial a phone number from the database, make sure you structure the form file so that the phone number field is defined as a character field and appears in a record before other fields that contain three or more consecutive numbers. If, for example, you place a ZIP code field before the phone number field in the form file, the Autodialer finds and dials the ZIP code number.*

When dialing a number in a record, the Autodialer scans all fields in the database (not just the viewable fields) and recognizes three or more consecutive numbers as a valid telephone number. The Autodialer accepts spaces, dashes, parentheses, hyphens, and "x" (for extensions). It also recognizes these characters in a phone number:

P: Indicates you have a rotary (pulse) dial phone.

T: Indicates you have a touch-tone phone.

, (comma): Pauses two seconds before continuing to dial. If you want a longer pause, you can use more commas. This is useful if you have to dial 9, for example, to get a line outside a main switchboard.

*** and #:** Are accepted characters for phone numbers.

@: Waits for a dial tone (no answer).

W: Waits for a dial tone before proceeding. This is useful for dialing long-distance access services and waiting for a tone before continuing to dial. This must be entered in uppercase.

K: Delays dialing until you choose **Resume Dialing** in the Autodial Pause dialog box. This is useful when an online service answers the phone and returns a tape-recorded request for more information before processing your transactions. This must be entered in uppercase.

Configuring the Autodialer

Before using the automatic dialing feature, you must set transmission options to connect your computer system and modem. After these options have been set, you do not need to change them unless you change modems. Also, you must be aware of the kind of phone system you are using; for example, whether you are using a pulse or tone dialing system and what kinds of delays and pauses you are likely to see.

Your modem should be configured so that Data Carrier Detect (DCD or CD) reflects the actual state of the carrier detect signal. Some modem manufacturers refer to this state as "True carrier detect."

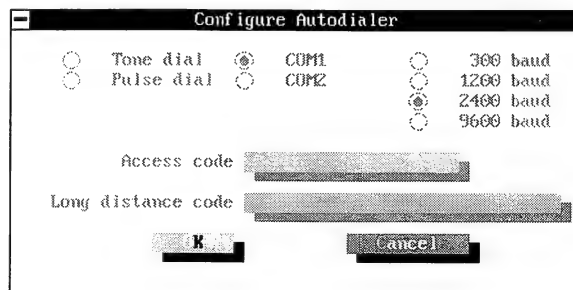
1. Choose **Configure Autodial** from the Controls menu.

The Configure Autodialer dialog box opens with **Cancel** selected, allowing you to verify the transmission options and exit without making changes if they are correct. If they are not, proceed to the next step.

2. Specify a dial type, COM port, and baud rate.
3. Type an access or long-distance code, if applicable.
4. Choose **OK** to set the new transmission settings.

The dialog box closes and the current record appears for you to dial the phone number.

Configure Autodialer Dialog Box



Tone Dial: Sets the dialing procedure for touch-tone phones. The "P" character in a phone number overrides this option.

Pulse Dial: Sets the dialing procedure for rotary dial phones. The "T" character in a phone number overrides this option.

COM 1, 2, 3, 4: Selects the serial port of your modem. Because COM3 and COM4 are not standard, they must be defined on the command line with one of the following options:

```
DESKTOP /C3=IRQ,Base Port Address
```

```
DESKTOP /C4=IRQ,Base Port Address
```

For example, to connect your modem to serial port COM3 and assign an Interrupt Request Level of 4 and a Base Port Address of 3E8, type

```
DESKTOP /C3=4,3E8
```

Refer to your modem manual for the IRQ and Base Port Address values. IRQ1 through IRQ7 are supported. This option is not necessary on PS/2 computers.

300 to 9600 Baud: Selects the speed at which the computer transmission takes place. Set the baud speed according to your modem's specifications.

Access Code: Specifies the access code you use to get an outside line. For example, if you need to dial 9 to get an outside line, enter 9 here and the Autodialer dials it for you automatically. If you are calling from a location that does not require an access code, leave this blank.

Long-Distance Code: Specifies the long-distance code you use for a long-distance phone call. The Autodialer dials the long-distance code after dialing any access code. For example, if you enter 1 as your long-distance code, the Autodialer automatically dials 1 for you.

Dialing

After you select all the appropriate settings for your modem, and display the record containing the phone number you want to call, make sure the modem is connected and turned on.

1. Choose **Autodial** from the Controls menu.

The Autodialer scans the fields in the current record to find a phone number. (Remember, it assumes that the first field containing three consecutive numbers is a phone number.) When the number is found, the modem dials the number, and a message tells you how to proceed.

2. Pick up the telephone, and click **Disconnect** to disconnect the modem.

You can also press **Esc** or **Enter** to disconnect the modem.

You must wait until the phone is ringing to disconnect the modem. You cannot cancel the Autodial command before the modem dials the phone.

Saving Setup Options

Normally, the settings you choose with the System Control and Controls menus affect only the current file. You can use **Save Setup** to save these settings so they are applied to every new database you open.

The Save Setup command globally saves the printing and formatting options for the following Desktop Accessories applications: Notepads, Outlines, and Databases.

- Choose **Save Setup** from the Controls menu.

The settings you have selected in the System Control and Controls menus are saved and the cursor returns to the database.

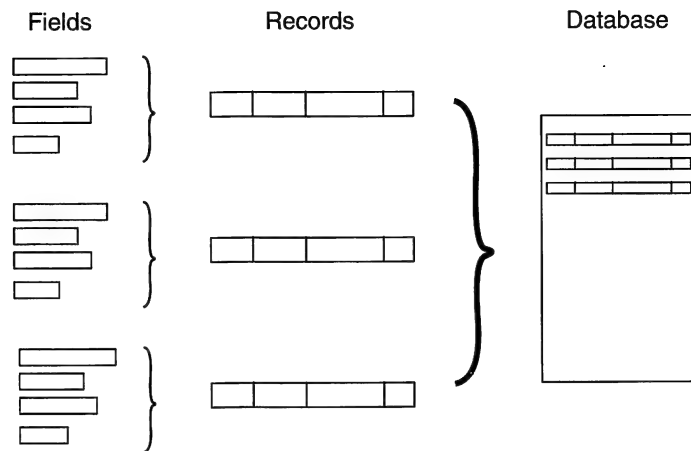
Understanding Databases

To understand a database, you need to understand how the information is stored. Learning and using a database is much easier if you understand these concepts:

- Records and fields
- Database structure
- Desktop Accessories database files

Records and Fields

In a database, you put individual pieces of information, such as a first name or street address, into *fields*. A set of fields makes up a *record*. A record holds a set of information about a single subject. Records of related subjects, for example all the people in your phone book, make up a *file*.



Each record in a database contains the same fields, though the information in these fields probably differs. For example, a customer database might contain information about each person who purchases a particular product. The information about one customer comprises one record. That record contains all the related fields of information for the customer, such as a name, address, telephone number, title, and company.

Records in a database can be displayed in two ways:

- In edit mode, each window displays one record at a time in the database.
- In browse mode, multiple records are displayed in a window. Records are arrayed horizontally instead of vertically in browse mode, with all field entries for one record on one line.

Browse mode is turned on and off with the **Browse** command in the File menu.

When you load a file, Databases uses the mode that you last viewed the file in. For example, if you last viewed a file in edit mode, it appears in edit mode the next time you load it. The first time you view a database file, it automatically appears in browse mode.

The Database Structure

Before entering data into a database, you need to plan its structure by naming the fields in a record, deciding the size of each field, and defining the field types. To do this, you should know exactly what information to store in the database and how you want to organize it. Use the following guidelines to structure your database:

Field Name: Names the field. When you manipulate data, you use field names to recall and refer to data stored in the fields. Therefore, it is helpful to use field names that describe the information in the field. Example field names for a customer list database are FIRST_NAME, LAST_NAME, PHONE, ADDRESS, CITY, STATE, and ZIP.

Field Size: Specifies the maximum number of characters allowed in a field.

Field Type: Specifies the kind of data allowed for each field and how the data can be used. Desktop Accessories supports four field types: character, numeric, logical, and date. The memo field type supported in dBASE is not supported by Desktop Accessories.

The Field Editor dialog box allows you to define the structure of your database. For more information on field types and this dialog box, see the "Creating a Database" section earlier in this chapter.

Desktop Accessories databases have the following limits:

- 70 characters per field
- 4,000 characters per record
- 128 fields per record
- 10,000 records per database

Desktop Accessories Database Files

Each Desktop Accessories database has three associated files: database, record, and form. Each file type has a file extension that must be used for Databases to function correctly.

Database Files: Have an extension of .DBF. They are compatible with dBASE; the field definitions and the information in the records remain the same in Desktop Accessories as in dBASE. If you load a dBASE file that contains more than 10,000 records, Desktop Accessories loads only the first 10,000 records. However, you can still perform all database functions except adding new records and packing the database. You can copy records with compatible fields between existing dBASE files and Desktop Accessories database files.

Record Files: Have an extension of .REC. Desktop Accessories creates record files automatically to maintain information about how to display the database. For example, when you tell Desktop Accessories to sort the database a certain way, the sort order is maintained in the file. The .REC file for a database must have the same file name as the .DBF file. The .REC files are used only by Desktop Accessories; they are not compatible with or used by dBASE. If the .REC file for a database is deleted, a new one is created automatically the next time you load the database.

Form Files: Have an extension of .FOR. They are standard Notepads files that allow you to display and print the information in a database in personally styled formats. A default .FOR file with the same name as the database is automatically created. Do not modify the default .FOR file. You can create a custom .FOR file with any name other than the database file name.

Appointment Scheduler

The Appointment Scheduler contains a calendar, scheduler, and list of things to do, allowing you to create, edit, view, and print your appointments and projects.

You can add, delete, or change appointments while using any other application. This lets you check your calendar for conflicts and schedule a meeting without exiting from your application.

Alarms can be set to run macros or load files. This lets you perform simple tasks automatically at a predefined time — for example, you can pop up a Notepads file with meeting notes, pull up a database record and dial a phone number, or start a backup after you have gone home. You can also be reminded of appointments by alarms you set within an application.

A standard Notepads file can be attached to an appointment for longer notes, and you can make group appointments for members of network groups.

Here's what you'll find in this chapter:

- **About Appointment Scheduler Files** explains how multiple schedule files are stored on a single PC.
- **Starting the Appointment Scheduler** explains how to start Appointment Scheduler from PC Tools Desktop.
- **Configuring Your Appointment Scheduler Display** explains how to change the default screen layout.
- **Making Appointments** explains how to add new appointments to your Daily Scheduler display.
- **Setting Group Appointments** explains how network users can form groups and make appointments for those groups.
- **Attaching Notes to Appointments** explains how to attach notes to any appointment.
- **Setting Alarms for Tasks** explains how to schedule alarms to display a reminder, or to automatically run a program or load a file.
- **Setting Alarms for Macros** explains how to set an alarm to run a macro at a specific time.
- **Editing Appointments and Notes** explains how to make changes to any appointment or to any attached notes.

- **Deleting Appointments** explains how to remove both one-time and recurring appointments from your schedule.
- **Deleting All Old Appointments** explains how to remove appointments from the past, thus reducing file size.
- **Finding Appointments** explains how to find a specific appointment, searching by text, type, date, or time.
- **Finding the Next Appointment** explains how to view the day's next appointment.
- **Finding Free Time** explains how to find the first free block of time in the Daily Scheduler with the duration you request.
- **Showing the Time-Usage Graph** explains how to view a time schedule for five days at a glance.
- **Making New To-Do List Entries** explains how to create To-Do Lists which include priorities and notes.
- **Attaching Notes to To-Do Entries** explains how to attach note attachments to To-Do entries.
- **Editing To-Do List Entries and Notes** explains how to edit both To-Do List entries and notes.
- **Deleting To-Do List Entries** explains how to delete a To-Do List entry.
- **Printing Your Schedule** explains how to print daily, weekly, monthly, or yearly copies of your schedule and To-Do List.
- **Changing Appointment Settings** explains how to set up the start and stop time for your work day.
- **Setting Holidays** explains how to designate the holidays you observe so that no appointments are scheduled on those days.
- **Working with Multiple Schedules** explains how each schedule is stored in a separate file.
- **Saving Appointment Scheduler Files** explains how a file may be saved both manually and automatically.
- **Viewing the Day's Schedule at System Startup** explains how to have the Appointment Scheduler start automatically each time you start your PC.

About Appointment Scheduler Files

It's easy to maintain more than one schedule file on a single computer. A different file name can be assigned to each schedule file, or files with the same name can be kept in different directories, as long as each file has the .TM extension. When the Appointment Scheduler loads, any files in the current directory that have the .TM extension appear in the File Load dialog box.

For example, when several people use the same PC, each person can keep his or her schedule file in a different directory.

If you're using a local area network, Appointment Scheduler files can be stored either on a local hard drive or on a network drive.

Starting the Appointment Scheduler

1. Choose **Appointment Scheduler** from the Accessories menu in PC Tools Desktop.
2. Create a new file with a .TM extension.

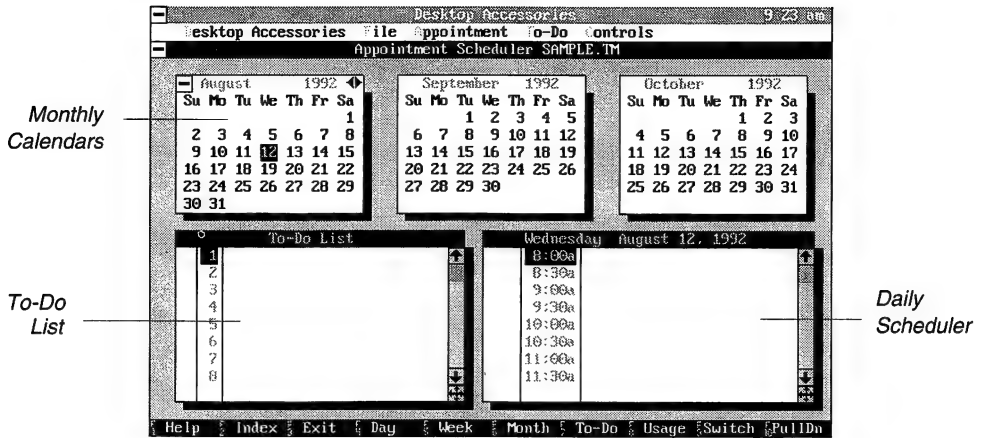
This starts the Appointment Scheduler on today's date with a blank schedule.

Refer to *Part 1 Getting Started* in Volume 1 or press **F1** for information about the File Load dialog box.

NOTE The date used is based on the system date set on your computer. If the date is incorrect, go to the DOS prompt, type **DATE** **Enter**, type the correct date, then restart Desktop Accessories and the Appointment Scheduler.

The Appointment Scheduler Screen

When you create a new .TM appointment file, the Appointment Scheduler displays the following screen:



In addition to the standard PC Tools window components, the Appointment Scheduler window contains the following elements:

Monthly Calendars: Shows a month-by-month calendar with the selected date highlighted. By default, the current date is highlighted. The highlighted date sets the day shown on the Daily Scheduler. The calendar is perpetual, so there is no end date.

To-Do List: Displays a reminder of important things to do, listed in order of priority. You can have up to 80 items on this list with attached notes. The To-Do List is independent of the Monthly Calendar and the Daily Scheduler.

Daily Scheduler: Displays a daily time planner with the selected time highlighted. The day displayed corresponds to the highlighted day on the Monthly Calendar.

Function Keys

Appointment Scheduler uses the following function keys in addition to the standard Desktop Accessories keys described in the *Starting Desktop Accessories* chapter:

Function Key	Description
[F4] Day	Displays or hides the Daily Scheduler window.
[F5] Week	Displays or hides the Weekly Appointment Display window.
[F6] Month	Displays or hides the Monthly Calendar window.
[F7] To-Do	Displays or hides the To-Do List window.
[F8] Usage	Displays or hides the Time-Usage Chart window.

Moving Around the Screen

The date selected on the Monthly Calendar determines the day shown on the Daily Scheduler and the week shown in the Weekly Appointment Display.

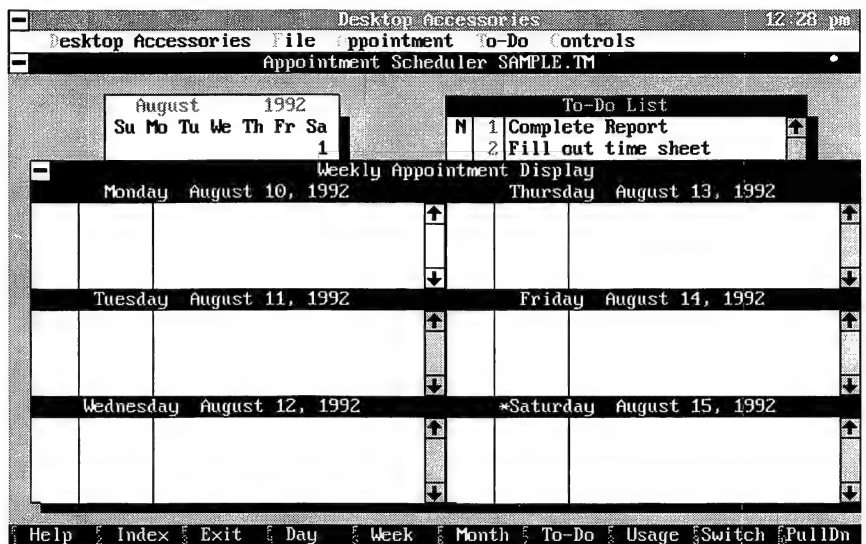
You can move around the screen as follows:

- To move between windows, press **(Tab)** or click in the window you want to move to. Inactive windows have dimmed title bars.
- To rearrange the windows, click on the window's title bar and drag it to the desired position, or use the **Move** command in the System Control menu.
- To maximize a window, click the triangle in the right corner of the title bar, or use the **Maximize** command in the System Control menu. Maximizing a window lets you see more entries. For example, maximizing the Daily Scheduler window expands the window to full-screen size and lets you see the full day's appointments.
- To close the active window, click its close box, or press the corresponding function key. For example, to close the Daily Scheduler window, press **(F4)**.
- To highlight a date on the Monthly Calendar, press **(↑)**, **(↓)**, **(←)**, or **(→)** or click the date with the mouse. If you move beyond the first or last day on the Monthly Calendar, the calendar scrolls to the next month. The Daily Scheduler and the To-Do List always reflect the date that is currently selected on the Monthly Calendar.
- To change months on the Monthly Calendar, press **(Pg Up)** or **(Pg Dn)** or click the arrows at the right corner of the title bar. To switch years, press **(Ctrl) (Pg Up)** or **(Ctrl) (Pg Dn)**. To return to the current date, press **(Home)**.
- To select an entry on the Daily Scheduler or the To-Do List, press **(↑)** or **(↓)**, or click the entry with the mouse. Press **(Pg Up)**, **(Pg Dn)**, or use the scroll bar to see other parts of the current day's schedule.
- To change days on the Daily Scheduler or the To-Do List, use **(←)** or **(→)**. To return to the current date, press **(Home)**.

Configuring Your Appointment Scheduler Display

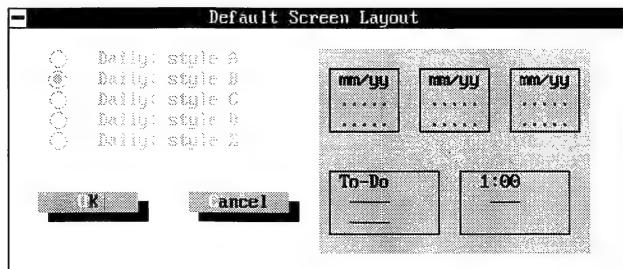
By moving, resizing, opening, and closing the various Appointment Scheduler windows, you can customize the display to suit your needs.

For example, to see all the appointments set for you this week along with the To-Do List and one Monthly Calendar, close the Daily Scheduler window, press **F5** to display the Weekly Appointment window, then resize and move the windows as necessary to make them easy to read. The resulting screen might look like this:



You can also use the Schedule Layouts command to set the default screen layout.

1. Choose **Schedule Layouts** from the Controls menu.



2. Select the default screen layout you want.
When you select a layout, the display to the right of the Default Screen Layout dialog box changes to represent the way your schedule will look.
3. When you are satisfied with your selection, choose **OK**.

Making Appointments

Adding new appointments to your Daily Scheduler display is quick and easy.

NOTE You can also create group appointments. See the section “Setting Group Appointments” later in this chapter for details.

1. Select the Monthly Calendar, and move the cursor to a date when you would like to make an appointment.
2. Select the Daily Scheduler, and move the highlight bar to the time for the appointment.
3. Choose **Make** from the Appointment menu, press **Enter**, or double-click the time slot.

4. Enter information about the appointment in the Make Appointment dialog box.

Description: Describes the appointment.

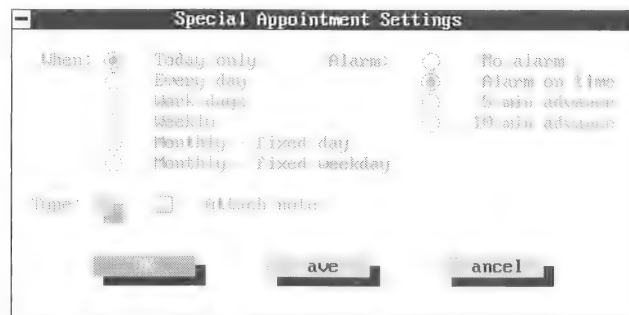
Start Date: Displays the first date on which this appointment appears on your schedule.

End Date: Displays the last possible date on which the appointment appears. (The last date is also affected by your selection in the **When** column in the Special Appointment Settings Dialog box. For example, if you select **Work days only**, the actual last date is the last week day before the date you enter here.)

Time: Displays the time of the appointment. Enter the appointment time, if it is different than the one shown. If you enter a time outside the increments currently displayed (either half or quarter hours), that time is added to the Daily Scheduler.

Duration Days, Hours, and Minutes: Displays the amount of time the appointment lasts. Type the desired days, hours, and/or minutes or click the arrow buttons to increase or decrease the values. The maximum appointment duration is 250 days.

5. Choose **Settings** and select the special appointment settings you want. To use the existing settings, go to step 7.



When: Determines whether this is a one-time or recurring appointment. Select **Monthly - fixed day** if you want this appointment to fall on the same date every month. Select **Monthly - fixed weekday** if you want to schedule the appointment on the the same weekday every month. For example, if you want to schedule an appointment for the 5th of each month, select **Monthly - fixed day**. Or, to schedule the appointment for the third Thursday of every month, select **Monthly - fixed weekday**.

Alarm: Controls whether the program alerts you of this appointment. When an alarm goes off, Desktop Accessories interrupts the program that is running, beeps the speaker, and displays a message box with the name of the appointment. The message box remains on the screen until you choose **OK**. Choosing **Snooze** clears the alarm message from the screen and causes the alarm to sound and the message box to appear again in five minutes.

An alarm may not be activated correctly if the computer's system time is inaccurate. To avoid this problem, make sure that the system time is accurate.

Additionally, alarms do not display automatically when Windows is running unless Central Point Scheduler for Windows is running. See *Part 3 Data Recovery and System Utilities* for information on the Central Point Scheduler for Windows.

Type: Identifies different types of appointments with a code. Later, you can use this code with the **Find Appointment** command to search for specific types of appointments easily. For example, you could use "D" for your doctor's appointments, "P" for your project development meetings, "S" for staff meetings, and "L" for lunch dates.

Attach Note: Determines whether a note is attached to this appointment. See the "Attaching Notes to Appointments" section later in this chapter for more information.

6. Save your choices:

OK: Saves the settings for this appointment only.

Save: Makes the settings the default for future appointments.

7. Choose **Make**.

The dialog box disappears. One or more of the following may be displayed on the screen:

- ▶ If the appointment date is prior to the current date, a dialog box appears. Choose **OK** to make the appointment or **Cancel** to cancel it.
- ▶ If the time you have scheduled the appointment overlaps with an existing appointment, a dialog box appears. Choose **OK** to make the appointment or **Cancel** to cancel it.
- ▶ If you selected **Attach Note**, a Notepads window appears on top of the Appointment Scheduler. You can enter text using the Notepads editing functions, then press **[Esc]** or click the close box. See the "Attaching a Note to an Appointment" section later in this chapter for details.

The Appointment Scheduler window appears and your new appointment appears in the Daily Scheduler.

If you set an alarm, a musical note appears to the left of the duration bar; non-recurring alarms show a single note, and recurring alarms show a double note. If you attached a note, an "N" appears to the left of the musical note.

If appointments overlap, the overlapping times are highlighted on the duration bar.

Setting Group Appointments

Individuals who use Desktop Accessories and have access to a network can form groups and make appointments for those groups. An individual can belong to multiple groups. You can be running Desktop Accessories from your local hard drive or from the network to use this capability.

Creating a Group

Each group must be associated with a directory on the network. This directory contains appointment information for the members of the group.

1. Have the network administrator create a directory on the network.
For example, the directory might be `H:\GROUPS\EXEC`.
2. The administrator should assign appropriate privileges to group members. To make group appointments, a user must have write privileges. To pick up appointments, a user only needs read privileges.

If the members of the group are the only ones who have read/write privileges to the directory, then no one outside of the group can gain access to the appointments made for the group.

3. Determine the file name to be used for storage of group appointment information. This file is stored in the group directory with a `.DAT` extension.

Continuing the example from step 1, the executive group's file name might be `TOPGUN`. The subdirectory `\GROUPS\EXEC` on drive `H:` contains a file called `TOPGUN.DAT` after the first member subscribes to the group.

4. Determine the group name to be associated with the group directory and file.

The group name is how members commonly address appointments to the group.

Again using the example from step 1, the group name could be `EXECUTIVES`. Whenever a member of this group creates an appointment for the group, choose `EXECUTIVES` from the Select Group dialog box.

Subscribing to a Group

1. Choose **Groups** from the File menu.
2. Choose **New**.



3. Type the name of the group you want to subscribe to in the Group Name text box.
4. Type the full path of the directory and file name on the network associated with the group.

NOTE Each person who wants to be a member of the group must follow this procedure.

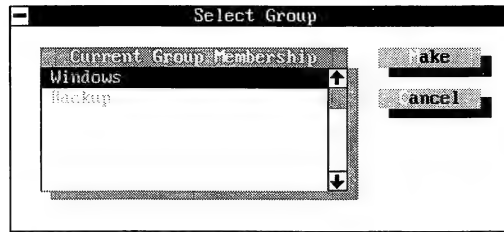
5. Choose **OK** to subscribe to the group.

You can subscribe to multiple groups. Once you are a member of a group you can set appointments for the entire group. You are notified of appointments made by other members of the group when you open the appointment schedule. You must be logged in to the network before starting the Appointment Scheduler to receive notification of group appointments.

NOTE The groups that you subscribe to are associated with the Appointment Scheduler file currently open.

Making an Appointment for a Group

1. Fill in the Make Appointment dialog box as described in the section "Making Appointments" earlier in this chapter. When you're finished, instead of choosing **Make**, choose **Group**.



2. Select the group for which you want to make this appointment.
Only groups you have subscribed to appear.
3. Choose **Make** to make the group appointment.

NOTE You can attach a note to a group appointment, but the note is not distributed to other members of the group.

Editing Group Membership Information

1. Choose **Groups** from the File menu.
2. Select the group you want to change in the Group list box.
3. Choose **Edit**.
4. Make the desired modifications in the Group Name or Group Directory text boxes.
5. Choose **OK**.

Removing Yourself from a Group

1. Choose **Groups** from the File menu.
2. Select the group you want to change in the Group list box.
3. Choose **Delete**.

Your name is removed from the group. Any appointments set for the group do not affect your Appointment Scheduler file.

Attaching Notes to Appointments

You can attach a note to any appointment. Attached notes are Notepads files that provide extra room to enter text you want to associate with an appointment. After a note is created, you can view or edit it at any time from the Appointment Scheduler or Notepads.

Attaching a Note when Creating an Appointment

1. Select **Attach Note** in the Special Appointment Settings dialog box.
2. Choose **OK**.
3. Choose **Make** to save the appointment.
If you are making a group appointment, choose **Group**, select a group, and choose **Make**.

NOTE Notes added to group appointments are stored only with the current schedule; they are not passed along to other group members.

The dialog box disappears and a Notepads file appears. The top line of the Notepads window contains the appointment description and its date and time; the rest of the file is blank so you can add any text you want.

4. Enter any text you want to keep with this appointment.
You may use all the editing features described in the *Notepads* chapter.
5. Press **[Esc]** to save and close the Notepads file.

The note has the same file name as the current Appointment Scheduler file, with a numeric extension that is the internal ID number of the selected appointment. Notes added to your appointments are created in the same directory as the current Appointment Scheduler file. An "N" appears to the left of the appointment on the Daily Scheduler to indicate a note is attached.

Attaching a Note to an Existing Appointment

1. Select the appointment you want to attach a note to, then choose either **Alter Note** in the dialog box that appears or **Attach Note** from the Appointment menu.
The dialog box disappears and a Notepads file appears.
3. Enter any text you want to keep with this appointment into the Notepads file.
4. Press **[Esc]** to save and close the Notepads file.

Setting Alarms for Tasks

Although Scheduler lets you schedule programs to run unattended, the Appointment Scheduler can also schedule alarms to run a program or load a file automatically. You can also display a reminder to confirm whether you want the task performed.

- If a program does not require input and takes a long time to run, you can set an alarm to run it at a specific time when you are not using your computer. For example, you might want to start a hard disk backup to tape or a compression program at the end of the day or when you are at lunch.
- If you want to load a file at a particular time, you can set an alarm to load that file into a Notepads file automatically. For example, you might want to set an alarm to remind you of a meeting and to load the meeting notes into a Notepads file so that you can review them before you attend.

Whether the alarm runs a program or displays a Notepads file depends on the type of file you tell the alarm to load.

- If the file name has the extension .BAT, .COM, or .EXE, signifying an executable file, Desktop Accessories runs the program.
- If the file name has any other extension, it is loaded into a Notepads file.
- If no file name is specified and there is a note attached to the appointment, the attached note is loaded when the alarm goes off.

NOTE *You must be running Appointment Scheduler memory-resident to use this feature.*

Because you can have more than one Appointment Scheduler file with different alarms scheduled on each, only the alarms for the last file loaded are active.

Setting an Alarm to Run a Program

1. Select the day you want to run the program on the Monthly Calendar.
2. Select the time you want to run the program on the Daily Scheduler.
3. Choose **Make Appointment** from the Appointment menu.
4. Enter the information about the program to run in the Description text box of the Make Appointment dialog box.

Follow one of the formats described below for entering this information. The way you enter the information in the Description text box determines whether the program prompts you before loading the file or loads it automatically.

5. If you're loading a program, select a Duration that is at least as long as the maximum time required to run the program.
6. Choose **Settings**.

7. Select the type of alarm.
If **No alarm** is selected, the program won't load.
8. Choose **OK**, then choose **Make**.

Setting an Alarm that Prompts You before Loading a File

- ▶ Enter the name of the file to load in the Description text box of the Make appointment dialog box as follows:

`reminder | filename options`

Reminder: Enter the text you want to appear in the dialog box that prompts you before the file loads.

Spaces are not required around the vertical bar ("|").

Filename: Enter any legal DOS file name. You need to specify the full path so Desktop Accessories knows where to find the file to load; otherwise, make sure that the file is in the same directory as the Desktop Accessories program files, or that it is a program file located in a directory included in the PATH statement.

Options: Enter options required by the executable file being invoked, if any.

TIP If the path name and/or options for an executable file do not fit in the Description text box, create a batch file to run the program and enter the name of the batch file in the Description text box.

Setting an Alarm that Loads a File Automatically

- ▶ Enter the name of the file you want to load as follows:

`| filename`

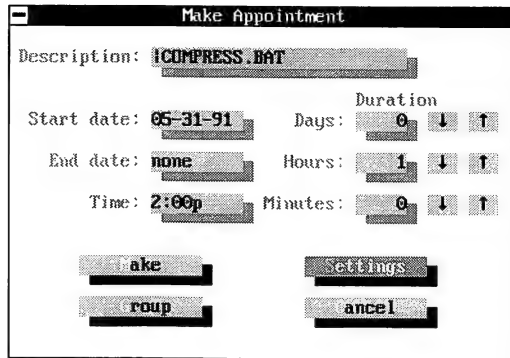
The same guidelines apply to the file name as were given above.

Examples

Running a Program at a Scheduled Time: You want to set an alarm that runs the PC Tools Compress program to defragment your hard drive once a day. Because the program's path name and options won't fit in the appointment text box, the alarm runs the COMPRESS.BAT batch file, which contains the following command:

`\PCTOOLS\COMPRESS C: /CF`

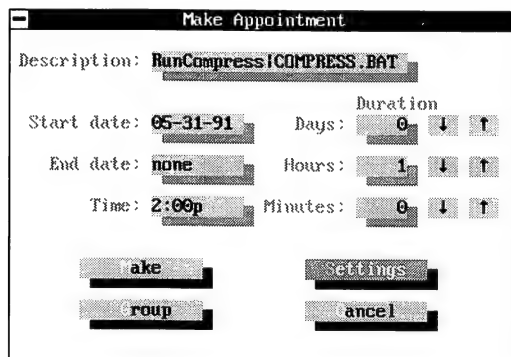
- Set the following alarm to run the program automatically:



1. Set a duration of one hour.
2. Choose **Settings** and set the alarm to go off on time.

Because the text of the appointment has nothing prior to the "|", the program runs automatically.

To give yourself the option of choosing whether you want to run the program, set the following alarm:



3. Choose **Settings** and set the alarm to go off on time.
- At 2:00 pm the alarm will go off and display the following dialog box:



4. Choose **OK** to run Compress.

Loading a Notepads File at a Scheduled Time: You have been keeping notes for a staff meeting in the Notepads document STAFF.TXT. Your meeting is scheduled for 9:00 am tomorrow. You do not want to forget the meeting, and you want to have your notes ready on the screen before you start the meeting. You can do any of the following:

- ▶ Set an alarm to remind you of your meeting and to prompt you to load your meeting notes by entering the following alarm and selecting the **10 Minute Advance** alarm:

Staff Meeting | STAFF.TXT

The alarm alerts you about the meeting at 8:50 with a beep and a note on your computer's screen. Choose **OK** to load the STAFF.TXT file into a Notepads file that appears on your screen.

- ▶ Set an alarm that loads the STAFF.TXT file automatically, without prompting you, by entering the following alarm:

| STAFF.TXT

- ▶ Attach a note that contains the STAFF.TXT file when you set the alarm. For example, enter

STAFF MEETING |

and select the **Attach Note** option. Make sure the vertical bar appears as the last character in the Description text box if you want the attached note to appear on your screen when the alarm goes off.

Setting Alarms for Macros

The Appointment Scheduler lets you set an alarm to run a macro at a specific time. With a macro, you can tell your computer to do almost any task automatically or with greatly reduced input. Because the Macro Editor is an internal Desktop Accessories application, you do not have to create special batch files to execute long commands. And because macros are independent of the Appointment Scheduler, you can use them in any application.

You can set an alarm that runs a macro automatically or one that displays a reminder so you can run the macro yourself.

NOTE You must be running Appointment Scheduler memory-resident from DOS to use this feature. Macros do not play back when Windows is running.

Because you can have more than one Appointment Scheduler file with different alarms scheduled on each, only the alarms for the last file loaded are active.

For instructions on creating macros, see the *Macro Editor* chapter.

Activating a Macro File

Before a macro can run, you need to tell the Macro Editor to make the file containing it active.

1. Choose **Macro Editor** from the Accessories menu in PC Tools Desktop.
2. Select a macro file in the File Load dialog box, and choose **Load**.
3. Choose **Macro Activation** from the File menu.
4. Select the **Active Everywhere** option in the Macros Active dialog box.

All the macros in this file are now active and ready to use until you choose **Erase All Macros** from the Controls menu or change the option setting in the Macros Active dialog box.

Setting a Macro to Run an Alarm

1. Select the day you want to run the macro on the Monthly Calendar.
2. Highlight the time you want to run the macro on the Daily Scheduler.
3. Choose **Make** from the Appointment menu.
4. Enter the information you want associated with the alarm in the Description text box of the Make Appointment dialog box.

Follow one of the formats described below for entering this information. The way you enter the information associated with the alarm determines whether the program prompts you before running the macro or runs it automatically.

5. Choose **Settings**.
6. Select a type of alarm in the Alarm column.
If **No alarm** is selected, the macro won't run.
7. Choose **OK**, then choose **Make**.

Setting an Alarm that Prompts You Before Running a Macro

- ▶ Enter the name of the macro to run as follows:

reminder | <macro name>

Reminder: Enter the text you want to appear in the dialog box that prompts you before the macro is run.

Macro Name: Enter the name of the macro to run surrounded by angle brackets.

Spaces are not required around the vertical bar ("|").

Setting an Alarm That Runs a Macro Automatically

- ▶ Enter the name of the macro you want to run as follows:

|<macro name> optional comment

The same guidelines apply to the macro name as were given above. In addition, you can type a note to remind you what the macro does. The alarm manager ignores this note, since it follows the name of the macro.

Example

You want to set an alarm that reminds you to call a client, and runs the <ctrlf6> macro, which displays a database of telephone numbers that you can refer to before you make your call.

First, activate the macro file containing the <ctrlf6> macro as described above.

- ▶ Set the following alarm to run the macro automatically:

The screenshot shows a 'Make Appointment' dialog box with the following fields and values:

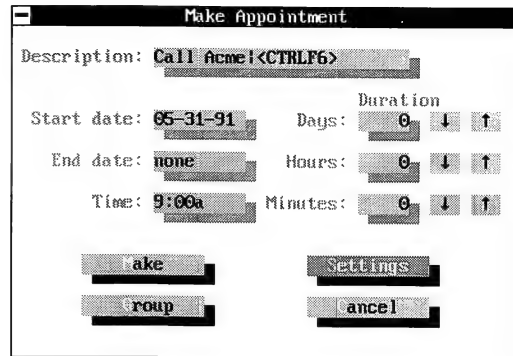
- Description: <CTRLF6>
- Start date: 05-31-91
- End date: none
- Time: 9:00a
- Duration: 0
- Days: 0
- Hours: 0
- Minutes: 0

Buttons at the bottom: OK, Settings, Group, Cancel.

Choose **Settings** and set the alarm to go off on time.

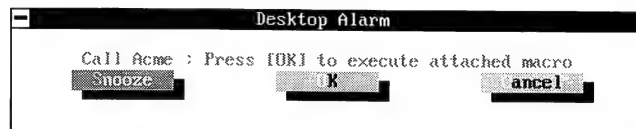
Because the text of the appointment has nothing prior to the "|", the macro runs automatically at 9:00.

- To give yourself the option of running the macro when the alarm goes off, set the following alarm:



1. Choose **Settings** and set the alarm to go off on time.

When the alarm sounds, the following message box appears:



2. Choose **OK** to run the macro.

Editing Appointments and Notes

After you have made appointments with the Appointment Scheduler, you can easily make changes to them and to any attached notes, whether they are one-time or recurring appointments.

Editing an Appointment

1. Select an appointment on the Daily Scheduler, then choose **Edit** from the dialog box that appears or from the Appointment menu.

NOTE If the appointment is a group appointment, a warning box tells you the appointment will be changed for all members of the group. Choose **OK** to continue.

The Make Appointment dialog box appears, listing the currently selected appointment.

2. Make any changes you want to the appointment setting, then choose **Make**.

Editing a Note Attached to an Appointment



1. Select an appointment on the Daily Scheduler that has a note attached and press **[Enter]**, then choose **Alter Note** from the dialog box that appears.

or

Choose **Attach Note** from the Appointment menu.

2. The Notepads file attached to the selected appointment appears for you to edit.
3. Make any changes you want to the note, then press **[Esc]** to save and close the Notepads file.

The Notepads file disappears and you are returned to the Daily Scheduler.



1. Double-click an appointment on the Daily Scheduler that has a note attached.
2. Choose **Alter Note**.
The Notepads file attached to the selected appointment appears for you to edit.
3. Make any changes you want to the note, then click the close box to save and close the Notepads file.

The Notepads file disappears and you are returned to the Daily Scheduler.

Instructions for editing Notepads files are found in the *Notepads* chapter.

Deleting Appointments

You can remove one-time appointments and recurring appointments from your schedule at any time.

1. Select an appointment on the Daily Scheduler, and choose **Delete** from the dialog box that appears or from the Appointment menu.

If the appointment is a group appointment, a dialog box appears giving you the option of deleting the appointment for your local schedule or for all group members. To delete the appointment only from your local schedule, choose **Local**. To delete the appointment for all group members, choose **OK**.

2. Choose **OK** from the confirmation dialog box.

If you try to delete a recurring appointment, an additional dialog box asks if you want to delete all of the recurring appointments or just the one for the current day.

Deleting All Old Appointments

You can keep Appointment Scheduler up-to-date by deleting old appointments. Clearing out old entries also prevents the Appointment Scheduler file from becoming too large, which can slow down response time on slower (4.77MHz) machines.

NOTE *The maximum size for Appointment Scheduler files is approximately 64K. Once a file reaches that size, you must delete some of the old entries before you can add any new ones.*

1. Choose **Delete Old Entries** from the Controls menu.
2. Enter a cutoff date in the Delete Old Entries dialog box.

Be sure to use the date format that you selected in the Appointment Settings dialog box.

3. Choose **Delete**.

All scheduled appointments ending before the specified date are deleted from the file.

NOTE *Group appointments ending before the specified date are not deleted. You must delete old group appointments individually.*

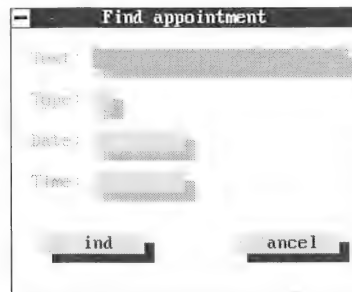
Finding Appointments

You can search the Appointment Scheduler by text, type, date, or time for a specified appointment.

For example, if you were looking for a “club meeting” appointment with the model train collectors’ club, you could use the following steps.

Finding an Appointment

1. Choose **Find Appointment** from the Appointment menu.



2. Enter the search criteria in the Find Appointment dialog box.
In this example, enter “train” in the Text field. If you used “T” to classify your meetings with the model train club, you can also enter “T” in the Type field.
You can enter text in uppercase or lowercase; for example, “Train,” “TRAIN,” and “train” are all recognized as the same.
3. Choose **Find** to start the search.
The Appointment Scheduler finds the first appointment after the current date and time that satisfies the requirements you entered in the dialog box. In this example, it finds the first appointment that contains the word “train” in the Text field and the letter “T” in the Type field.
4. Continue choosing **Find** to locate additional appointments.
When the program cannot find any more appointments that fit the criteria, it beeps and the Find Appointment dialog box disappears.

Finding All Appointments

1. Choose **Find Appointment** from the Appointment menu.
2. Choose **Find** without typing a character string in the Find Appointment dialog box.
Alternatively, you can press **Enter**. The Appointment Scheduler searches for all appointments after the current date and time.

Finding the Next Appointment

No matter what you are currently doing in the Appointment Scheduler, you can immediately find out what your next appointment is.

- Choose **Next** from the Appointment menu.
The next appointment is highlighted on the Daily Scheduler. If you have no more appointments scheduled for the day, the cursor is positioned on the current time.

Finding Free Time

The **Free Time** command highlights the first free block of time in the Daily Scheduler with a duration you request.

1. Choose **Find Free Time** from the Appointment menu.

The screenshot shows a dialog box titled "Find free time". It has two input fields for "Start time" (8:00a) and "Stop time" (5:00p). Below these are two radio buttons under the label "Where": "Any day" and "Work day". To the right of these is a "Duration" section with three rows: "Days" with a value of 0, "Hours" with a value of 1, and "Minutes" with a value of 0. Each of these three rows has up and down arrow buttons for adjustment. At the bottom of the dialog are two buttons: "Find" and "Cancel".

2. Fill in the Find Free Time dialog box with information that describes the free time you want to find.

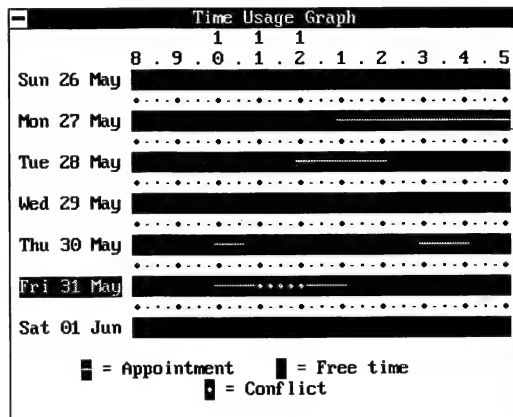
3. Choose **Find**.

The Appointment Scheduler moves the cursor in the Daily Scheduler to the first free block of time that meets the criteria in the dialog box. It looks ahead for up to 365 days to find the time slot you need. Days you have defined as holidays or non-workdays are not considered as free time.

Showing the Time-Usage Graph

The Time-Usage graph shows you the schedules for five days at a glance.

1. Press **F8**.



The first day on the Time-Usage Graph is the selected day on the Monthly Calendar. When you scroll the Time-Usage Graph with the arrow keys or the mouse, it also changes the selected date on the calendar. Pressing **Home** returns you to today's date; **Pg Up** and **Pg Dn** move you ahead or back one week (seven days) at a time.

The thin lines represent appointments, shaded areas are free times, and diamond-shaped dots are conflicts.

2. Click the close box or **F8** again to close the Time-Usage Graph window.

Making New To-Do List Entries

You can use the To-Do List to keep track of your current projects, action items, and goals. List entries are displayed only for a specified period of time, beginning on the date they are made and ending on the end date you specify. Also, each entry in the list can have a note attached to it and be assigned a priority. Entries appear on the list in order of priority.

1. Position the cursor on a blank To-Do List item and type your entry, then press **Enter**.

The New To-Do Entry dialog box appears with the text you entered in the To-Do List text box.

or

Choose **Make** from the To-Do menu, and type a Description for this entry in the New To-Do Entry dialog box.

The Start date fills automatically with the date selected on the calendar.

2. Specify an end date, if applicable.

The entry is removed from the list on this date.

If no end date is specified, the entry reappears each day until it is deleted.

3. Select a priority, if desired, by typing a number between 1 (highest priority) and 10 (lowest priority) in the Priority text box or clicking the arrow buttons.
4. Select **Attach note** if you want to attach a note to this To-Do List entry.
See the section “Attaching Notes to To-Do Entries” for more information.
5. Select **Repeat each year** to display the reminder note on the same time period each year.
6. Choose **Make**.
The entry is added to the To-Do List. Entries appear on the list in order of priority. Entries with the same priority appear in the order of their creation.

Attaching Notes to To-Do Entries

You can attach a note to any To-Do List entry. Attached notes are standard Notepad files that provide room to enter text you would like to associate with an entry. After you create an attached note, you can view or edit it from the Appointment Scheduler at any time.

Attaching a Note when Creating a To-Do List Entry

1. Select **Attach Note** in the New To-Do Entry dialog box.
2. Choose **Make** to add the entry to the list.

The dialog box disappears and a Notepads window appears. The top line of the Notepads window contains the To-Do List entry and its date, time, and priority number; the rest of the file is blank so you can add any text you want.

3. Enter any text you want to keep with this To-Do List entry.
You may use all the editing features described in the *Notepads* chapter.
4. Press **[Esc]** or click the close box to save and close the Notepads file.
The To-Do List appears again.

The note has the same file name as the current Appointment Scheduler file, with an extension that is the internal ID number of the selected To-Do List entry. It is created in the same directory as the current Appointment Scheduler file. An "N" appears to the left of the entry to indicate a note is attached.

Attaching a Note to an Existing To-Do List Entry

1. Select the To-Do List entry you want to attach a note to, then choose either **Alter Note** in the dialog box that appears or choose **Attach Note** from the To-Do menu.
A Notepads window appears.
2. Type the notes you want associated with the entry in the Notepads file.
3. Press **[Esc]** or click the close box to save and close the Notepads file.
The To-Do List appears again.

Editing To-Do List Entries and Notes

After you have created entries for the To-Do List, you can easily make changes to them and to any attached notes.

Editing an Entry

1. Select a To-Do List entry and press **[Return]** or double-click with the mouse.
A dialog box asks if you want to edit the To-Do List entry, delete it, or alter the note attached to it.

2. Choose **Edit**.
3. Make any changes you want in the New To-Do Entry dialog box, then choose **Make**.

Editing an Attached Note

1. Select the To-Do List entry, then choose either **Alter Note** in the dialog box that appears or choose **Attach Note** from the To-Do menu.
2. The attached Notepads file appears so that you can make changes.

Deleting To-Do List Entries

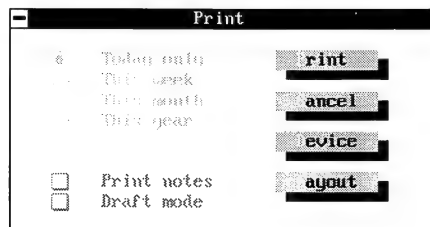
The To-Do List stores up to 80 items at a time. By deleting items you no longer need, you always have room for new entries.

1. Select the To-Do List entry, then choose **Delete** in the dialog box that appears or select **Delete** from the To-Do menu.
2. The To-Do List entry disappears from the screen. Any entries below the deleted entry move up.

Printing Your Schedule

You can print daily, weekly, monthly, or yearly copies of your schedule and To-Do List. You can also print the notes attached to appointments and To-Do Lists.

1. Choose **Print** from the File menu.



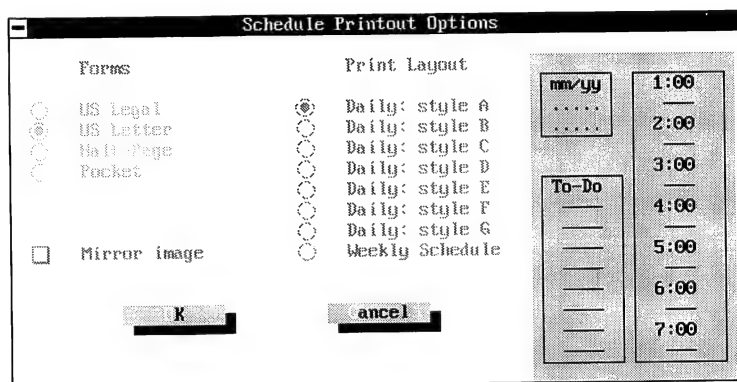
2. Select the options you want to use.
Today Only: Prints schedule information for the day currently displayed.
This Week: Prints schedule information for the week currently displayed.
This Month: Prints schedule information for the month currently displayed.

This Year: Prints schedule information for the year currently displayed.

Print Notes: Prints any notes attached to appointments or To-Do Lists. Notes are printed on a separate sheet of paper.

Draft Mode: Tells your printer to print the schedule in its fastest mode. Not all printers support this option.

3. Select the item you want to print in the Schedule Printout dialog box.
4. Choose **Layout**.



5. Select a form type.

US Legal: Formats for printing on 8-1/2" x 14" paper.

US Letter: Formats for printing on 8-1/2" x 11" paper.

Half-Page: Formats for printing on 8-1/2" x 5-1/2" paper.

Pocket: Formats for printing on 3-3/4" x 6-3/4" paper.

TIP If you use a Franklin Day Planner or a DAY-TIMER, blank, pre-punched forms are available corresponding to the form types.

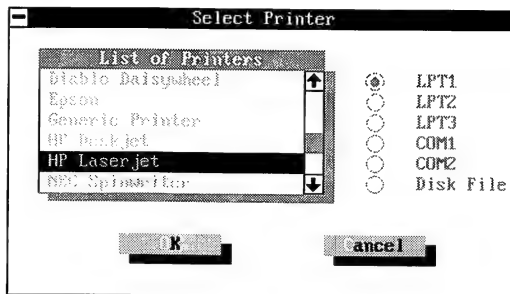
- US Letter: Franklin Planner "Day Planner Computer Paper Continuous Feed" Product #3734 or #3748
DAY-TIMER "All-Purpose Form" Product #90831 Style M513 (Sr.)
- Half-Page: Franklin Planner "Day Planner Computer Paper Continuous Feed" Product #4036
DAY-TIMER "All-Purpose Form" Product #90631 Style L513 (Jr.)
- Pocket: DAY-TIMER "Blank Page" Product #11885 Style K636 (Sr.)

6. Select a print layout and, if desired, **Mirror image**.

When you select a print layout style, the sample display on the right side of the dialog box indicates the way your schedule prints.

Selecting **Mirror image** swaps the information on the left and right of the sample display.

7. Choose **OK** to return to the Print dialog box.
8. Choose **Device**.



9. Select a printer and the parallel or serial port it is connected to.
To print the schedule to a file, select **Disk File**. The file has the same name as the Appointment Scheduler file with a .PRT extension.
10. Choose **OK** to return to the Print dialog box.
11. Choose **Print** to print your schedule.
A dialog box displays while the schedule prints. To cancel printing, press **Esc**.

Changing Appointment Settings

To customize the Appointment Scheduler for your needs, you can set up the start and stop times for your work day. This affects the following features:

- The range of hours shown on the Daily Scheduler
- The Time-Usage Graph display
- The way that finding free time works

NOTE Changes made apply only to the current Appointment Scheduler (.TM) file.

1. Choose **Appointment Settings** from the Controls menu.

Work days	Start time	Stop time	Increment
<input type="checkbox"/> Sunday	8:00a	5:00p	<input type="radio"/> 15 minutes
<input checked="" type="checkbox"/> Monday			<input checked="" type="radio"/> 30 minutes
<input checked="" type="checkbox"/> Tuesday			
<input checked="" type="checkbox"/> Wednesday			
<input checked="" type="checkbox"/> Thursday			
<input checked="" type="checkbox"/> Friday			
<input type="checkbox"/> Saturday			

Date format	Time format
<input checked="" type="radio"/> MM-DD-YY	<input checked="" type="radio"/> am/pm
<input type="radio"/> DD-MM-YY	<input type="radio"/> 24 hour
<input type="radio"/> YY-MM-DD	

OK cancel

2. Select the options you want to use.

Work Days: Defines your work week. They are the only days on which Appointment Scheduler schedules recurring weekday appointments.

Start Time and Stop Time: Limits the span of time that appears on the Daily Scheduler.

Increment: Determines the length of the time slots that appears on the Daily Scheduler.

Date Format and Time Format: Determines how dates and times appear in the program.

NOTE If you use a 24-hour time format in DOS, make sure the time format in Appointment Scheduler is also set to a 24-hour clock to ensure that the alarms associated with your appointments go off at the right time.

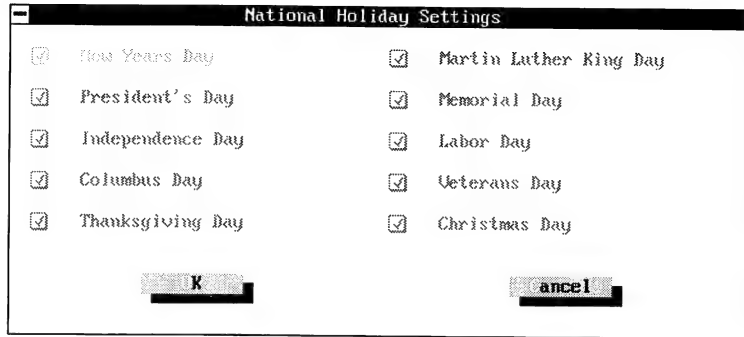
3. When you are satisfied with your selections, choose **OK**.

Setting Holidays

You can customize the Appointment Scheduler by designating which holidays you observe, so that you do not schedule any appointments on holidays. Holidays appear with an asterisk (*) to the left of the date on the Daily Scheduler. Recurring appointments are not scheduled on holidays. For example, if you make a recurring appointment on Mondays, that appointment won't be scheduled on Mondays that are holidays.

Setting National Holidays

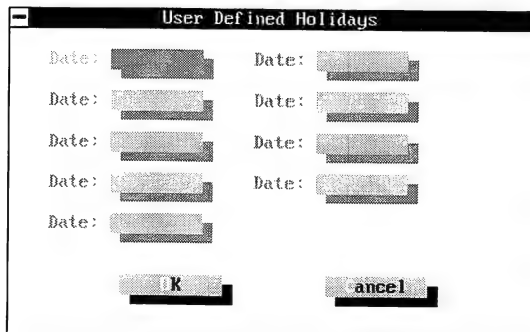
1. Choose **National Holiday Settings** from the Controls menu.



2. Select any national holidays you want to observe.
A checkmark appears in the box to the left of the holiday when it is "turned on." The Appointment Scheduler knows what dates the holidays fall on, so you do not need to enter them. No appointments are scheduled on holidays marked with a checkmark.
3. Choose **OK** when you have selected the holidays you want.

Setting Other Holidays

1. Choose **User Holiday Settings** from the Controls menu.



2. Type in the dates of any additional holidays you want to observe.
You can also enter dates when you know you will be unavailable for appointments (for example, when you are away from the office). Be sure to use the same date format you selected in the Appointment Settings dialog box.
3. Choose **OK** when you have set the holidays you want.

Working with Multiple Schedules

Appointment Scheduler keeps each schedule in a separate file. Schedule files have the extension .TM. There are two ways in which you can work with multiple schedule files.

- If you're finished with the file you're currently using, you can close it and load a different one by selecting **Appointment Scheduler** from the Accessories menu in PC Tools Desktop.
- You can load a different file into a new window on top of the current one. You can then switch between windows, with all editing functions available in both.

Loading a Different File

- ▶ Select **Appointment Scheduler** from the Accessories menu in PC Tools Desktop. You see the File Load dialog box. Select the file you want to load and choose **Load**.

The file opens in a new Appointment Scheduler window on top of the any previously open windows. To switch between the windows, press **F9**.

Looking for Files in a Different Directory

- ▶ If the file you want to load does not appear in the left-hand selection box, it may be located in a different directory. The current directory appears above the middle box.

To change directories, select the drive letter in the right-hand box. A list of directories on that drive appears in the middle window. Select the one that contains the file you want. A list of all files with the extension .TM appears in the left-hand box.

Loading a File into the Same Window

- ▶ Select **Load** from the File menu. You see the File Load dialog box. Select the file you wish to load and choose **Load**. (If the file you want does not appear in the selection box, see the “To look for files in a different directory” procedure above.)

The program saves and closes the file you were working with, then opens the one you selected.

Saving Appointment Scheduler Files

In addition to the methods of saving a file that are described in *Part 1 Getting Started* in Volume 1, you can use the **Save** and **Autosave** commands from the File menu.

Saving the File You’re Working On

Use the **Save** command whenever you want to save changes you have made to a file without closing the file.

1. Choose **Save** from the File menu.

The Save File To Disk dialog box appears with the name of the current schedule in the Filename text box. To save your changes to a different schedule or keep different versions of the schedule, enter a new name in the Filename text box. To save the file to a different directory, enter the directory and path name in the Filename text box.

2. Choose **Save** to save the schedule.

NOTE *Saving a .TM file with a new name does not copy or rename any existing notes attached to appointments or To-Do List entries. You can use PC Tools Desktop to globally rename a .TM file and all of its attached notes.*

Saving Automatically

The **Autosave** command instructs Appointment Scheduler to save your file automatically at designated intervals. Use this command to minimize any data loss from power outages.

1. Choose **Autosave** from the File menu.
2. Type a number representing the number of minutes between each automatic save or click the arrow buttons to increment the number.

The default setting saves every five minutes.

3. Select **On** or **Off**.
4. Choose **OK** to activate the setting you selected.

Viewing the Day's Schedule at System Startup

To start Appointment Scheduler automatically when you start your computer, include the following line in your AUTOEXEC.BAT file.

DA /RA

NOTE *Nothing that follows this command is executed until you exit from Desktop Accessories.*

When you run Desktop Accessories with the /RA option, it starts the Appointment Scheduler automatically using the currently active Appointment Scheduler file. At this point, Desktop Accessories is fully functional. If you do not have an active Appointment Scheduler file, Desktop Accessories displays a screen telling you that it is memory-resident.

For more information about options, see the *Desktop Accessories Command-Line Options* chapter.

Modem Telecommunications

Modem Telecommunications allows you to connect your PC to virtually any other computer system using a modem. With a Hayes-compatible modem, you can dial out and connect to local bulletin board systems (BBS) or commercial online services such as MCI, CompuServe, or EasyLink. You can also use Modem Telecommunications in manual mode to auto-answer and transfer files.

Online services allow you to send faxes and electronic mail, check the status of the stock market, shop for goods and services, talk to other computer users, using bulletin boards, and review news stories

Access to MCI Mail, EasyLink, CompuServe, and Central Point Software's BBS is provided for you in the phone directory that comes with Desktop Accessories. Information on subscribing to and using these online services is given in the "Using Online Services" section later in this chapter. Information on setting up your own service entries is provided in the "Editing the Phone Directory" section later in this chapter.

NOTE *To schedule automatic electronic mail operations, see the Electronic Mail chapter.*

Modem Telecommunications gives you flexibility. You can use your choice of 300 to 19,200 baud rate modems connected to any of your PC's communications ports; transfer files to other computers or online services using either XModem, ZModem, Kermit, or ASCII; and automate procedures with script files.

Here's what you'll find in this chapter:

- **Starting Modem Telecommunications** explains how to start Modem Telecommunications from PC Tools Desktop.
- **Configuring Your Modem** explains how to change default modem options.
- **Using Online Services** explains how to access an online service to read mail, or to send mail, faxes or telexes.
- **Loading an Existing Phone Directory** explains how to load a modem phone directory.
- **Creating a Phone Directory** explains how to create separate modem phone directories for different types of phone numbers.

- **Editing the Phone Directory** explains how to edit or add a modem phone directory entry.
- **Saving a Phone Directory** explains how to save a listing of phone numbers you call frequently.
- **Configuring Binary Transfer Options** explains how to select the binary protocol you use most often, a default directory to save downloaded files in, and whether ZModem file transfers can be received automatically
- **Dialing Numbers** explains how to dial a modem phone number automatically or manually, and how to select the size of an online screen.
- **Transferring Files** explains how to transfer files between your computer and a remote computer.
- **Setting the Modem for Auto-Answer** explains how to set the modem to answer automatically.
- **Ending a Transfer without Disconnecting** explains how to end a file transfer, using a modem, while still staying connected to the remote computer.
- **Ending a Session** explains how to end an established communications session.
- **Using Terminal Emulation (ALT-ESC)** lists the supported VT100 and VT52 terminal emulation features.
- **Creating Script Files** lists the commands for writing script files, and explains how to use script files.
- **Running a Script File** explains how to execute a script file at any time during a telecommunications session.

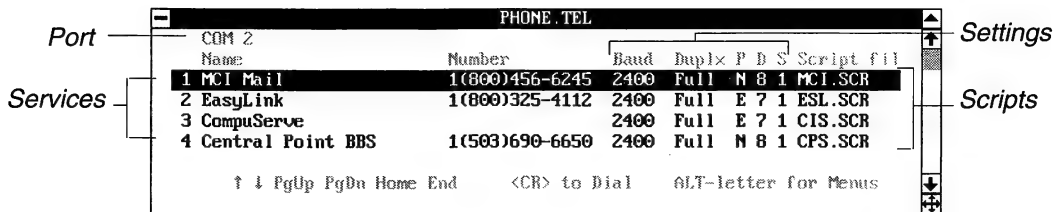
Starting Modem Telecommunications

- ▶ Choose **Modem Telecommunications** from the Accessories menu in PC Tools Desktop.

The default phone directory file (PHONE.TEL) loads into the Modem Telecommunications window.

The Modem Telecommunications Window

Modem Telecommunications includes communication settings for MCI Mail, EasyLink, CompuServe, and the Central Point BBS. When you choose **Modem Telecommunications** from the Accessories menu in PC Tools Desktop, the following window appears:



In addition to the standard PC Tools window components, the Modem Telecommunications window contains the following elements:

Port: Shows the selected communications port where your modem should be connected.

Services: Lists the names and phone numbers for the services configured in the current phone directory. You can select a service quickly by typing the number next to its name or clicking it with the mouse.

Settings: Shows the communications settings configured for each service. These settings are:

Baud: Shows the speed at which the communication takes place. The higher the number, the faster the transmission.

Duplex: Explains how computers treat transmitted data. Most systems are full duplex; some are half duplex.

PDS: Refers to Parity, Data bits, and Stop bits, which contain information about the character format used for transmission.

When you register for a computer information service or receive permission to access another computer system, you usually receive a password and a manual explaining what baud rate, duplex, and PDS settings are required to connect to the system.

Scripts: Contains the name of a file that provides instructions for automatically performing specified operations. Script files are useful for logging on to a system or for other procedures you want to automate. See the "Creating Script Files" section later in this chapter for information on creating and using script files.

Function Keys

Modem Telecommunications uses the following function keys in addition to the standard Desktop Accessories keys described in the *Starting Desktop Accessories* chapter:

Function Key	Description
F4 Load	Loads another phone directory file (<i>filename.TEL</i>).
F5 Save	Saves the current phone directory file.
F6 Edit	Opens the Edit Phone Directory dialog box.
F7 Dial	Dials the number specified in the highlighted entry.
F8 Manual	Lets you manually enter a number to be dialed.

Configuring Your Modem

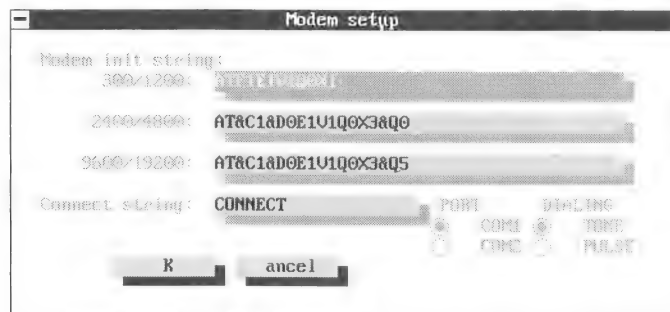
You can change the following default modem options configured during installation:

- Modem initialization string
- Connect string
- COM port where your modem is attached
- Type of dialing supported by your phone system

Changing the Default Modem Options

1. Choose **Modem setup** from the Setup menu.

The Modem setup dialog box appears.



2. Enter or edit the Modem Init String, or press **Tab** to continue to the next option.

The init (initialization) strings for 300/1200-, 2400/4800-, and 9600/19200-baud modems are displayed. Modem Telecommunications automatically uses one of these initialization strings, depending on the baud rate selected in the Edit Phone Directory dialog box.

Your modem is actually like a very simple computer. The initialization string is just a series of commands for the modem, similar to your computer's AUTOEXEC.BAT file.

If you are not sure what to do, consult your modem manual. The modem determines what the initialization string should be; the Modem Telecommunications application does not.

3. Enter or edit the Connect String sent by your modem during transmission to tell Modem Telecommunications that it has made a phone connection.

Some Hayes-compatible modems use the string "CONNECT," which is listed as the default in the Modem Setup dialog box. Others use the string "CONNECT 2400."

NOTE You may need to enter a different connect string if you are not using a Hayes-compatible modem. Consult your modem manual to see what connect string you should use.

4. Select a COM Port to use for communications.

COM1 through COM4 are supported by Modem Telecommunications. The COM3 and COM4 ports appear only when you have used the /C3 or /C4 command-line options. See the *Desktop Accessories Command-Line Options* chapter in this part for information.

5. Select either touch-tone or pulse (rotary) dialing.

You can change this setting at any time.

6. Choose **OK** to save the modem setup changes.

Using Online Services

The default phone directory file, PHONE.TEL, comes with four online services already installed. If you do not have a user ID and password for a service you would like to use, you should first call the numbers provided in the file to subscribe to the service and obtain additional information.

Included with Desktop Accessories are script files that automate using these services. You can also access the additional capabilities of an online service by entering command mode. In command mode, Desktop Accessories logs you on to the online service and lets you interact directly with it.

Before Accessing an Online Service through Desktop Accessories

1. Get the access phone number for the service in your area.

Use the phone numbers listed in the phone directory file to contact the service you want and get a local access number.

2. Get a user ID and password from the service.
3. Enter the access phone number, user ID, and password in the phone directory entry for the service.

You can enter the information by editing the entry in the PHONE.TEL phone directory for the online service, as described in the “Editing the Phone Directory” section later in this chapter.

Customizing a Telecommunications Database

When you use Desktop Accessories to send electronic mail, faxes, or telexes to an individual or company automatically, it refers to the database specified in the Edit Phone Directory dialog box. You can create your own database or use the TELECOM.DBF database, which was installed with Desktop Accessories.

When you use an online service, you can store information about those to whom you send mail, faxes, or telexes in a database such as the TELECOM.DBF database. The TELECOM.DBF database has already been set up with the fields needed by these services. You can also create and use another database containing only the fields of concern to you. Before using a database with an online service, you must follow the procedure below to enter the required information.

1. Choose **Databases** from the Accessories menu in PC Tools Desktop.
2. Select a telecommunications database from the directory where Desktop Accessories is located.

You can use the TELECOM.DBF database file or create a new one. If you create a new one, use the field names described in the next step.

3. Enter or edit the information in the phone directory fields.

See “Editing the Content of Records and Fields” in the *Databases* chapter for instructions. Fields in the TELECOM.DBF database are:

Name: Indicates the name of the person you are sending mail or faxes to.

Company: Displays the name of the company or organization you are sending mail or faxes to.

Phone: Displays the phone number of the modem or fax machine you will be communicating with.

FAX_TELEX: Indicates the fax number for this person or company.

MCI_ID: Indicates the MCI user ID for this person or company.

NOTE To allow the MCI script file to use your telecommunications database for sending faxes, using MCI Mail, type the name of the person or company you are sending faxes to in the MCI_ID field. This is used to specify the name of the person or company you are sending the faxes to on the fax cover page.

ESL_ID: The EasyLink user ID for this individual or company.

CIS_ID: The CompuServe user ID for this individual or company.

CPS_ID: The Central Point Software BBS user ID of the person you want to send mail to through the Central Point BBS.

4. Press **F3**, **Esc**, or click the close box to return to the Telecommunications window. Your changes are saved automatically.

Using Login Script Files

When using online telecommunications services, you enter the same information session after session. For example, when you connect to an online service, you generally go through a login procedure to identify yourself to the other computer.

Modem Telecommunications provides four login script files to automate various standard login procedures and display a command menu for mail and other functions. Script files are saved with a .SCR extension and are the default entries in the PHONE.TEL phone directory. The Modem Telecommunications window lists these files in the Script File field.

Use this Script File	To Connect to this Online Service
MCI.SCR	MCI Mail sends fax, reads mail, sends electronic mail.
ESL.SCR	EasyLink sends fax, sends telex, reads mail, sends electronic mail.
CIS.SCR	CompuServe sends fax, reads mail, sends electronic mail, logs on to <i>PC Magazine</i> section, logs on to the Central Point Software forum.
CPS.SCR	Central Point BBS sends electronic mail, reads electronic mail.

For example, the MCI.SCR script runs automatically when you dial the MCI phone number. To use another script for an online service, see the "Creating Script Files" section later in this chapter.

Connecting to an Online Service

Now you are ready to call an online service and use their utilities. You can connect to any online service by following the steps below.

- ▶ Select the entry for the online service you want to call and press **Enter** or double-click it.

The phone number of the service you selected is dialed.

After the phone number has been dialed, messages such as "Script file running" appear at the bottom of the screen to indicate communication is under the control of a script file.

After you have successfully logged on, an automated script option menu prompts you for the task you want to do (such as send a fax, read mail, or send mail). What you see and the items you have to choose from are determined by the script file.

Using MCI Mail, EasyLink, and CompuServe

After you have established a connection with an online service, the procedure for using each available option differs only slightly between services.

Reading Mail

- ▶ Choose **Read Electronic Mail** from the script option menu.

If you are connected to MCI or EasyLink, a message tells you that your mail is being captured and placed in an ASCII text file, **TODAYS.MCI** or **TODAYS.ESL**. After the mail is captured, you are logged off, and returned to the main Telecommunications screen. You can now open Notepads and read your mail.

or

If you are connected to CompuServe, follow the instructions that appear on your screen. After you have read your mail, you can perform other CompuServe functions or type **BYE** to log off.

Sending Mail, Faxes, or Telexes

1. Choose a send function from the script option menu.

For example, if you are connected to EasyLink, you can choose **Send Electronic Mail**, **Send Electronic Fax**, or **Send Electronic Telex**.

2. Enter the ID of the person to whom you are sending mail.

3. When prompted to do so, type the drive and path name of the file you want to send.

For example, if your message is in the file LETTER.MAI in your PCTOOLS\DATA directory on drive C, type

```
C:\PCTOOLS\DATA\LETTER.MAI
```

The file LETTER.MAI is sent to the person with the ID you have selected. After the transmission has finished, the script file automatically disconnects you from the service, hangs up, and returns you to the Telecommunications phone directory.

Using the Central Point BBS Options

The following options are listed on the Central Point BBS menu:

Product Information: Allows you to read information about Central Point Software products.

Technical Information: Provides a variety of technical information related to Central Point Software products.

Customer Service Information: Provides a variety of sales and user registration information.

Download Files: Allows you to download files for program upgrades.

BBS Information: Allows you to check which users are online and conduct multi-user teleconferencing.

Leave a Message: Allows you to leave messages for our technical support staff and send messages to other Central Point Software users.

Read Your Messages: Allows you to read messages sent to you.

News Flash: Allows you to read the latest information about Central Point products.

Exit the System: Allows you to log off from Central Point Software BBS.

After selecting an option, follow the instructions on the screen to use the utility you have chosen.

Loading an Existing Phone Directory

When you load a Modem Telecommunications file, any Telecommunications files currently open are replaced by the file you are loading. Any changes made to the current directory are lost when you load another file, so be sure to save changes to your file before opening another one.

- ▶ Choose **Load** from the File menu.

The File Load dialog box appears, listing the names of the existing files, directories, and drives. Phone directory files have a file extension of .TEL.

Creating a Phone Directory

You can create separate phone directories for different types of phone numbers. For example, you can have one directory for people you contact using a modem through your job, another for personal friends, and another for members of your fishing club. Each directory can have up to 60 entries. Keep in mind that these phone numbers are for use with a modem. For directories of telephone numbers for general use, see the *Databases* chapter.

1. Choose **Telecommunications** ▶ **Modem Telecommunications** from the Accessories menu in PC Tools Desktop.
2. Choose **Load** from the File menu.
3. Enter a name for your new directory in the File Load dialog box and choose **New**.
An empty phone directory with default communication settings appears on your screen. At this point, you can start building your new directory.
4. Choose **Create New Entry** from the Edit menu.
5. Enter the required information in the first Edit Phone Directory dialog box.
See the “Editing the Phone Directory” section following this procedure for information about dialog box options.
6. Choose **Next Screen**.
7. Enter the required information in the second Edit Phone Directory dialog box.
8. Choose **OK**.
9. Repeat steps 4 through 8 to create all the entries you need.

Editing the Phone Directory

The PHONE.TEL phone directory file shipped with Desktop Accessories already contains entries for MCI Mail, EasyLink, CompuServe, and Central Point BBS. To change any information in an existing entry, create an entry, or remove an entry, follow the steps outlined on the following pages.

Editing an Existing Entry

1. Highlight the entry you want to change in the Modem Telecommunications window.

You can press the number that precedes the entry to do this or click the service with the mouse.

2. Choose **Edit Entry** from the Edit menu.

3. Enter or edit information in the Edit Phone Directory dialog box.

Name: Shows the name of a person, company, or computer service. The field may contain up to 50 characters.

Database: Shows the path and name of a database file containing fields of data you want to send, such as a phone or fax number. For example, to use the database file TELECOM.DBF in the PCTOOLS\DATA directory located on your C: drive, type

C:\PCTOOLS\DATA\TELECOM.DBF

Field 1/Field 2: Shows the names of two fields in the specified database, containing data you would like to send, such as a name or fax number. For example, if the fields NAME and FAX in TELECOM.DBF contain the name and fax number of someone you want to send faxes to, enter NAME and FAX in the Field text boxes. These fields are used in conjunction with scripts.

Phone: Shows the phone number and any additional commands used by your modem to control phone dialing. Hayes-compatible modems ignore spaces, dashes, and parentheses, so you can type a phone number as you normally would: (800) 555-9978. This field may contain up to 25 characters. Leave the Phone entry blank if you only want to set up the communications settings.

Script: Shows the file name (with .SCR extension) for your script file containing commands for automated procedures. In Desktop Accessories, script files can be used to log on to a system, read electronic mail, and download or upload a file.

User ID: Indicates your user ID, a maximum of 25 characters. This ID (generally defined by an online service) identifies you when you log on to the service. Modem Telecommunications differentiates between uppercase and lowercase, so be sure to enter your user ID exactly as it was provided to you.

Password: Indicates a secret code of up to 21 characters. This password ensures that only you and others who know your password can access an online service.

While you need to check the documentation to determine password restrictions for your particular online service, there are some general restrictions. Most passwords must be between 5 and 15 characters long and be composed of letters or numbers. Passwords may not begin with a space or contain high ASCII characters.

NOTE *Most online services do not differentiate between uppercase and lowercase entries, but Modem Telecommunications does, so be sure to remember the exact way you enter your password.*

Once the password is saved, the characters are replaced by solid squares to conceal them during future editing operations.

4. Choose **Next Screen**.

The screenshot shows a window titled "Edit Phone Directory" with three columns of radio button options. The first column, "BAUD RATE", has options 300, 1200, 2400 (selected), 4800, 9600, and 19200. The second column, "PARITY", has options NONE, ODD, EVEN (selected), SPACE, and MARK. The third column, "TERMINAL", has options TTY (selected), ANSI, VT100, and VT52. Below these are three more sections: "FLOW CONTROL" with XON/OFF (selected) and NONE; "EOL RECEIVE" with ADD LF, ADD CR, and NONE (selected); "EOL SEND" with STRIP LF, STRIP CR, and NONE (selected); "DATA BITS" with SEVEN (selected) and EIGHT; "STOP BITS" with ONE (selected) and TWO; and "DUPLEX" with FULL (selected) and HALF. At the bottom are "OK" and "Cancel" buttons.

5. Set or change any of the telecommunications options to match your modem and the online service's settings, and then choose **OK**.

Baud Rate: Shows the speed at which the transmission takes place. The higher the number, the faster the transmission. The number must be less than or equal to the manufacturer's rated speed for the modem you are using and must match the system you are calling.

Parity(P): Ensures the integrity of your data — usually the eighth data bit in a word. Setting the parity to **Odd** makes the sum of each character's bits come out odd. **Even** parity makes the sum of the character's bits come out even. **Space** puts a zero (0) as the eighth bit, regardless of the resulting parity, while **Mark** puts in a one (1). **None** does nothing to the eighth data bit.

If the receiving computer adds up the bits and gets an unexpected number, the character was transmitted incorrectly. Parity must match the requirements of the remote computer. The most common settings are none or even.

Terminal: Indicates one of four terminal emulation modes. See the "Terminal Emulation" section later in this chapter for additional information on these settings.

TTY: Used most frequently by information services and electronic bulletin boards.

ANSI: Used on electronic bulletin boards for ASCII extended character sets such as graphics, color, and animation.

VT100: Emulates DEC's VT100 terminal. (Advanced escape sequences are not supported.)

VT52: Emulates DEC's VT52 terminal.

Flow Control: Used when one computer needs time to accept a file from the other. When the receiving computer sends an XOFF character (transmission off), the sending computer stops transmission. The sender does not restart transmission until the receiver sends an XON character (transmission on). This setting must match on both computers. Check the manual you received with your online service subscription for the correct setting.

XON/OFF: Helps to buffer data between the two computers.

None: Does not help to buffer data.

EOL Receive: Used by the sending computer to mark the end of the line on ASCII transfers. Check the manual that came with your subscription service for the correct setting. The defaults are set for normal bulletin-board communications. UNIX systems use a line feed (LF) only.

Add LF: Indicates the sending computer system uses CR (carriage return) only to mark the end of a line. Modem Telecommunications adds an LF (line feed) for incoming transmissions.

Add CR: Indicates the sending computer system uses LF only to mark the end of a line. Modem Telecommunications adds a CR for incoming transmissions.

None: Indicates the sending computer system uses CR/LF to mark the end of a line and does not modify the data.

EOL Send: Used by your computer to mark the end of the line when you press **Enter** and on ASCII transfers. Check the manual that came with your subscription service for the correct setting. The defaults are set for normal bulletin-board communications. UNIX systems use a line feed (LF) only.

Strip LF: The receiving computer system expects CR only to mark the end of a line. Modem Telecommunications removes the LF for outgoing transmissions.

Strip CR: The receiving computer system expects LF only to mark the end of a line. Modem Telecommunications removes the CR for outgoing transmissions, and the **Enter** key sends LF.

None: The receiving computer system expects CR/LF to mark the end of a line. Because Modem Telecommunications sends CR/LF, no character deletion is needed; the **Enter** key sends a CR/LF.

Data Bits: The number of actual data bits (seven or eight) in a transmitted character. The number value depends on the requirements of the remote computer. Most systems use eight.

Stop Bits: The number of bits (one or two) used to indicate the end of a character. The selection depends on the requirements of the remote computer. Most systems use one.

Duplex: The type of setting used to transmit data (full or half). Select **Full** to allow the modem to send and receive simultaneously. When set to full-duplex, your monitor shows the characters that are echoed back from the remote computer instead of what you type on your keyboard. The echoed characters should match what you type. If they don't, check your Parity and Data Bits settings.

Select **Half** to tell your modem to either send or receive, but not do both. This means that it will send back to your screen the characters you type and sending them to the remote computer.

TIP *If you see two of every character you type, you are set at half-duplex and both your modem and the remote computer are sending the characters to your screen. To remedy this, change the Duplex setting to **Full**.*

*If you can't see what you are typing, your system is set to full-duplex but the remote computer is not echoing back the characters it receives. To remedy the situation, change the Duplex setting to **Half**.*

Adding a New Entry

If you subscribe to another service and want to add it to the PHONE.TEL phone directory, follow the steps below.

1. Choose **Create New Entry** from the Edit menu.
2. Enter the required information in the first Edit Phone Directory dialog box. Dialog box options are described in the above procedure.
3. Choose **Next Screen**.
4. Enter the required information in the second Edit Phone Directory dialog box.
5. Choose **OK**.

Your new entry appears selected in the phone directory window.

If a message tells you there is no more room, your file has more than 60 entries. You need to either remove some existing entries that you no longer use or add the new entries to a different phone directory.

Removing an Entry

1. Select the entry you want to permanently remove.
2. Choose **Remove** from the Edit menu.

Saving a Phone Directory

Phone directories are saved automatically when you press **[Esc]** or click the close box. In addition, you can save a file using the **Save** command from the File menu or pressing **[F5]**.

1. Choose **Save** from the File menu.

The Save File To Disk dialog box appears with the name of the current file in the Filename text box.

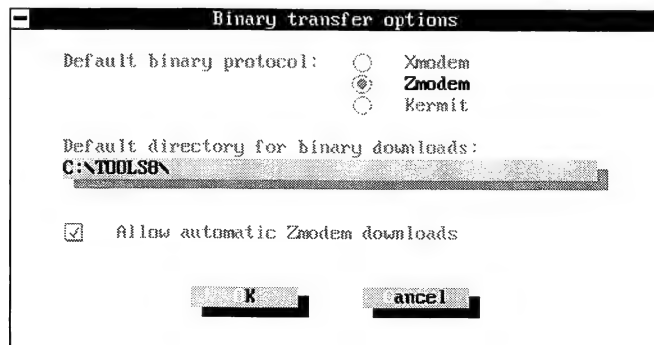
2. Choose **Save** to save your changes to the currently listed directory.

To save changes to a different phone directory, or to keep different versions of the phone directory, enter a new name in the Filename text box and then choose **Save**.

Configuring Binary Transfer Options

Files can be either program files or data files. Program files contain instructions, or commands, that the computer carries out. Data files contain data, such as the information you enter into your spreadsheets or databases. Any data file that contains only ASCII characters is called a text file, while data other than ASCII characters is called a *binary file*. Because word-processing files contain words, people often confuse them with text files. A word-processing file is not a text file because it usually contains binary codes and ASCII text.

The Binary Transfer Options command from the Setup menu lets you select the binary protocol you use most often, a default directory to save downloaded files in, and whether ZModem file transfers can be received automatically, without any input.



1. Select which binary protocol you want as the default.
Your selection here determines which protocol uses the **F5** and **F7** function keys in the Telecommunications (Online) window.
2. Type the path to the directory where you want downloaded files saved.
The current default is C:\PCTOOLS (or where your environment variable points).
3. Turn off the **Allow Automatic ZModem Downloads** if you want to manually receive files.
This option allows you to download files with ZModem without issuing the Receive command from your computer. Once the sending computer starts the ZModem download, your computer automatically receives the files.

Dialing Numbers

With Modem Telecommunications, you can dial a phone number yourself by typing in the numbers using the keyboard, or you can let the computer dial a number in your phone directory automatically.

If a connection cannot be made, a message appears either as a dialog box or in the message bar. For example, the Hayes Smartmodem displays “no carrier” on the message bar if the connection was not successful. See the manual that came with your modem for a description of any messages your modem may display.

Make sure your Hayes-compatible modem is configured correctly, connected, and turned on before trying to dial a number.

Dialing Numbers Automatically

After entering a number in a phone directory file, use the procedure below to dial the number whenever you want. You never need to enter it again.

1. Select the entry you want to call.
2. Press **Enter** or double-click on the entry to dial the phone number.
You can also press **F7** or choose **Dial** from the Actions menu.

If the phone number of the selected entry is blank, you are prompted to enter the phone number to dial.

When the connection is made, type in commands or responses to questions to transmit your keystrokes to the remote computer. If you have included a script file, it is executed when the connection is made.

To send an **[Esc]** to the other computer, press **[Shift] [Esc]**. Pressing **[Esc]** without **[Shift]** displays the previous window.

Dialing Numbers Manually

When you dial manually, you use the modem options set for the highlighted entry. You might want to dial the phone manually if you

- Do not want to use any of the entries in the current PHONE.TEL file.
- Want to use a different phone number without changing the options you've already selected.
- Do not have a Hayes-compatible modem attached.
- Are already connected directly to another computer without using a modem.

Modem Telecommunications provides an easy method for dialing numbers manually:

1. Select an entry with the modem options you want.
2. Choose **Manual** from the Actions menu or press **[F8]**.

A blinking cursor appears in the upper-left corner of the blank screen, indicating that you are in manual mode. Press **[Alt]** or **[F10]** to display the horizontal menu bar with pull-down menus for choosing actions online, receiving files, and sending files. Press **[Esc]** to return to the blinking cursor display.

When the **Full Online Screen** option in the Setup menu is turned off, helpful information and available function keys appear at the bottom of the screen. If you do not want to display this information, see the procedure immediately following this one.

For more information about the function keys available, see the "Transferring Files" section later in this chapter.

3. Type the dialing sequence described in your modem manual.

For example, if you are using a Hayes modem, type ATDT (AT gets the modem's attention; D is for dial, T is for tone). Then type the phone number with no spaces.

When the connection is made, you can type in commands or your responses to questions, and your keystrokes are transmitted to the remote computer.

Selecting the Size of the Online Screen

You can specify whether you want a message bar and list of shortcut keys displayed at the bottom of the online screen.

- ▶ Choose **Full Online Screen** from the Setup menu to toggle this option on and off.

When this option is turned on, your screen displays the maximum number of lines and no message bar. A checkmark appears to the left of the command on the menu to indicate it is on. When it is off, the bottom two lines of the screen display helpful information and function keys. See the following section, "Transferring Files," for a description of the available function keys.

Transferring Files

Modem Telecommunications allows you to transfer files between your computer and a remote computer.

You can receive (download) files from a remote computer and save them to disk. For example, you can download a program or file from an online service like CompuServe. To receive files, you can call another computer system and instruct it to send files or set up your computer to auto-answer when another computer calls.

You can send (upload) files to a remote computer. For example, you can upload a personal sales report from your PC to the mainframe computer at your company's headquarters. To send files, you must call another computer system and instruct it to receive the files, or set up your computer to auto-answer when another computer calls.

To transfer files, you must use the same protocol as the remote computer. A communications protocol is a set of rules that specifies how files are to be exchanged. You can choose one of the following protocols from the Receive menu or the Send menu:

ASCII: Generally used for transferring electronic mail and text files between computers. You can use ASCII receive to create a log of all data received from the remote computer while you are connected or to keep a record of anything that prints on your screen during a communications session. You can also use ASCII to send text files to a system that does not support any other protocol.

ASCII is not an error-free protocol. It does not check for errors caused by interference in the phone lines. Therefore, you should use XModem, ZModem, or Kermit if it is critical that no errors are received in the document.

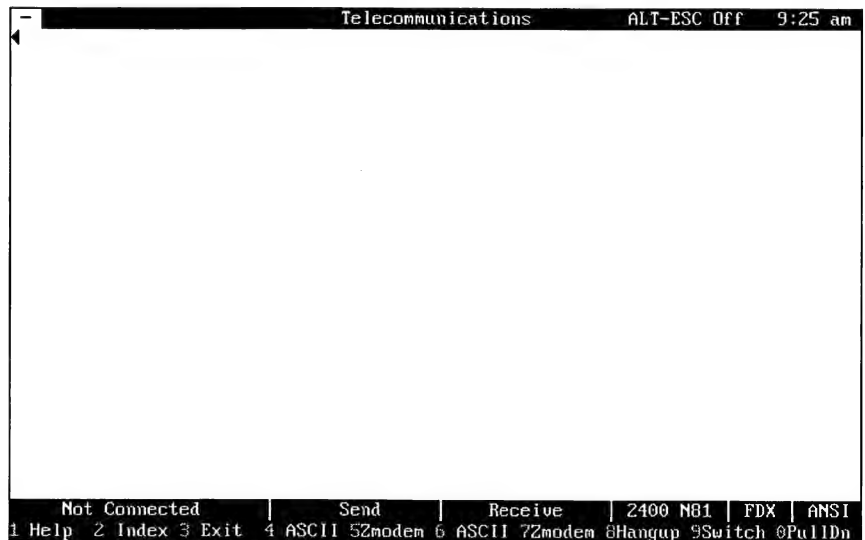
XModem: The most universal microcomputer protocol. It allows dissimilar computer systems to exchange files. XModem contains mechanisms to check for errors caused by interference in the transfer, like static in the phone lines. Although it is slower than ASCII, it is more accurate, so use XModem to send large files or files that must be exactly transferred, such as programs or data files like spreadsheets or databases.

ZModem: Offers the best combination of speed and reliability. ZModem handles multiple-file transfers, unlike XModem. ZModem can transmit data without waiting for responses from the remote computer. If there is a problem with a transfer, such as a network delay, ZModem is often able to adjust itself and recover the transfer. If the remote computer supports ZModem, it is your best choice for telecommunications.

Kermit: Also handles multiple-file transfers, and is noted for its transmission accuracy (but not its speed) and is most effective over noisy telephone lines because it checks for errors in the command it sends as well as the data. It was developed to work across a multitude of telecommunications equipment. Kermit is used most often to communicate with DEC minicomputers and IBM mainframes.

NOTE *The way you set up the remote computer for a file transfer varies between online services. Refer to the service's manual or help system for instructions.*

When you send or receive files, you use the Telecommunications window.



Function Keys

Function keys used in the Telecommunications window are:

Function Key	Description
F4 ASCII	Sends files using the ASCII protocol.
F5 Varies	Sends files using the default protocol set from the Binary Transfer Options command. This key could be XModem, ZModem, or Kermit.
F6 ASCII	Sets the system to receive files using the ASCII protocol.
F7 Varies	Sets the system to receive files using the default protocol set from the Binary Transfer Options command. This key could be XModem, ZModem, or Kermit.
F8 Hangup	Disconnects from the remote computer.

Receiving Files with the ASCII Protocol

1. Choose **ASCII** from the Receive menu or press **F6** to bring up the Save dialog box.
2. Type the full path name of the file to receive in the Filename text box.
Give the file a name and extension that is logical to you.
3. Choose **Save** to capture the file and save it.
Information sent to your screen (either by you or the remote computer) is captured.
4. Choose **End Transfer** from the Actions menu or press **Esc** when the transfer completes.
You can cancel an ASCII transfer at any time by choosing the **End Transfer** command from the Actions menu or by pressing **Esc**.

Sending Files Using the ASCII Protocol

1. Choose **ASCII** from the Send menu or press **F4**.
2. Select the file you want to send in the File Load dialog box.
3. Choose **Load** to send the file.
The file's contents appear on the screen as the file transfers.

Receiving Files with the XModem Protocol

If you have selected XModem as your default binary protocol, the **F7** function key is configured for use with XModem.

1. Select the file to download and follow the service's instructions to begin an XModem file transfer.
2. Choose **XModem** from the Receive menu or press **F7** to bring up the Transfer Status dialog box.
3. Type the full path name of the file in the Filename text box.
Give the file a name and extension that is logical to you.
4. Choose **Save** to capture the file and save it.

As the file transfer takes place, the Transfer Status box appears, showing how much time has elapsed, how many bytes have been transferred, and how many errors have occurred. See the section "The Transfer Status box" later in this chapter.

Sending Files with the XModem Protocol

If you have selected XModem as your default binary protocol, the **F5** function key is configured for use with XModem.

1. Follow the service's instructions for receiving a file.
2. Choose **XModem** from the Send menu or press **F5**.
3. Select the file you want to send in the File Load dialog box and choose **Load**.

The Transfer Status box appears, showing how much time has elapsed, how many bytes have been transferred, and how many errors have occurred.

Receiving Files with the ZModem Protocol

If you have selected ZModem as your default binary protocol, the **F7** function key is configured for use with ZModem.

If the Allow Automatic ZModem Downloads option is on in the Binary Transfer Options dialog box, then step 1 is all you need to do. If not, perform both steps.

1. Select the file(s) to download and follow the service's instructions to begin a ZModem file transfer.

2. Choose **ZModem** from the Receive menu or press **(F7)** to bring up the Transfer Status dialog box.

The downloaded file is placed in the directory specified in the Binary Transfer Options dialog box.

As the file transfer takes place, the Transfer Status box appears, showing how much time has elapsed, how many bytes have been transferred, and how many errors have occurred. See the section "The Transfer Status box" later in this chapter.

Sending Files with the ZModem Protocol

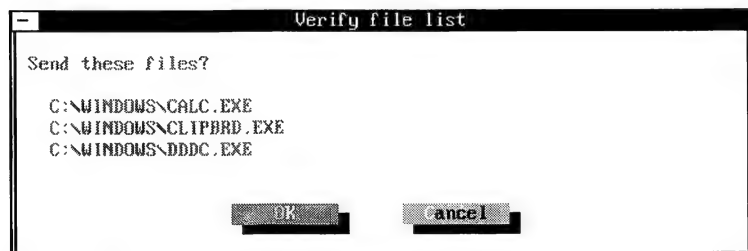
If you have selected ZModem as your default binary protocol, the **(F5)** function key is configured for use with ZModem.

1. Follow the service's instructions for receiving a file.
2. Choose **ZModem** from the Send menu or press **(F5)**.
3. Select the file you want to send in the File Load dialog box and choose **Add**.

You can select up to 15 files to send.

4. Choose **Send**.

The Verify File List dialog appears so you can verify that you are sending the files you want.



5. Choose **OK** to send the file.

The Transfer Status box appears, showing how much time has elapsed, how many bytes have been transferred, and how many errors have occurred.

Receiving Files with the Kermit Protocol

If you have selected Kermit as your default binary protocol, the **F7** function key is configured for use with Kermit.

1. Select the file(s) to download and follow the service's instructions to begin a Kermit file transfer.
2. Choose **Kermit** from the Receive menu or press **F7** to bring up the Save dialog box.

The downloaded file will be placed in the directory specified in the Binary Transfer Options dialog box.

As the file transfer takes place, the Transfer Status box appears, showing how much time has elapsed, how many bytes have been transferred, and how many errors have occurred. See the section "The Transfer Status box" later in this chapter.

Sending Files with the Kermit Protocol

If you have selected Kermit as your default binary protocol, the **F5** function key is configured for use with Kermit.

1. Follow the service's instructions for receiving a file.
2. Choose **Kermit** from the Send menu or press **F5**.
3. Select the file you want to send in the File Load dialog box and choose **Add**.

You can select up to 15 files to send.

4. Choose **Send**.

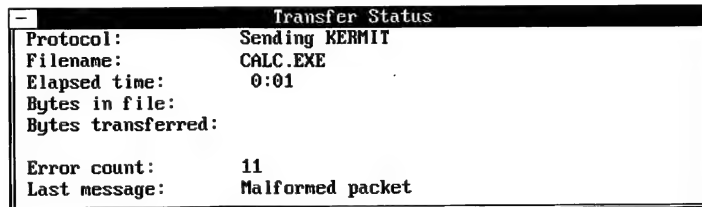
The Verify File List dialog appears so you can verify that you are sending the files you want.

5. Choose **OK** to send the file.

The Transfer Status box appears, showing how much time has elapsed, how many bytes have been transferred, and how many errors have occurred.

The Transfer Status Box

When sending or receiving files using XModem, ZModem, and Kermit protocols, the following transfer status dialog box appears so you can monitor the file transfer's progress. Some protocols do not contain all of the following information. In the example, Kermit doesn't show the error-checking information. However, XModem and ZModem do.



Protocol: Shows the protocol that is being used for the file transfer (in this example, Kermit).

File Name: Shows the name of the file currently being transferred.

Elapsed Time: Shows how many minutes and seconds have elapsed during the transfer.

Bytes in File: Shows how many characters are to be transferred.

Bytes Transferred: Shows how many characters have been transferred.

Error Checking: Shows the method used by the remote computer to check for errors. Because noise and static can cause problems when transferring files over telephone lines, Modem Telecommunications performs two kinds of error checking (depending on the protocol being used): Checksum and CRC, or CRC-32 and CRC-16. The program automatically selects the method being used by the remote computer.

Error Count: Shows the number of errors transmitted in a block of data. If you notice a large number of errors during a file transfer, you may want to cancel the transfer by choosing **End Transfer** from the Actions menu or pressing **[Esc]**. Ten errors on a single block ends the transfer automatically. This may indicate a noisy phone line, and you may want to try again after hanging up and redialing.

Last Message: Provides messages during the file transfer.

You may cancel the transfer at any time by choosing **End Transfer** from the Actions menu, or by pressing **[Esc]**.

Setting the Modem for Auto-Answer

1. Choose **Manual** from the Actions menu or press **F8**.
Any characters you type are displayed automatically on the screen.
2. Type `ATS0=1` **Enter**. (Make sure you type a zero, not the letter 'O'.)
This instructs your modem to answer on the first ring. You may now work in another application.

Ending a Transfer without Disconnecting

You may decide that you want to end the transfer of a particular file, but stay connected to the remote computer for receiving another file.

- ▶ Choose **End Transfer** from the Actions menu.
You remain connected to the remote computer, but the current file transfer ends.

NOTE When using the ASCII protocol to receive files, you must use the **End Transfer** command from the Actions menu to inform Modem Telecommunications that the file transfer is complete.

Ending a Session

You can disconnect from a communications session either after establishing a connection or before going online.

1. Log off the remote computer.
2. Choose **Hangup Phone** from the Actions menu or press **F8**.
This ends the communications session, disconnects your modem from the phone line, and displays the phone directory window.

To hang up before going online:

- ▶ Hang up the phone while it is dialing by pressing **Esc**.
The phone directory window appears.

Using Terminal Emulation (ALT-ESC)

The **Alt Esc** feature is primarily for support of VT100 and VT52 terminal emulation. The status of this feature (on or off) appears on the far right of the Telecommunications window title bar. Each time **Alt Esc** is pressed, it changes state. When turned on, the **Esc** and function keys function differently than they normally do within Desktop Accessories, as indicated in the following table:

NOTE Advanced escape sequences of VT100 terminal emulation are not supported in Desktop Accessories.

Key Press	Alt-Esc On	Alt-Esc Off
Esc	Send Esc to modem	Exits to Telecommunications main (offline) screen
Function keys	Sends Esc sequences to modem	Normal functionality
Shift Esc	Exits to Telecommunications main (offline) screen	Sends Esc to modem
Shift F1 through F10	Normal functionality	Send Esc sequences to modem

Alt-Esc is turned off by default in TTY and ANSI modes, and on by default in VT100 and VT52 modes, thus allowing VT100 and VT52 keys to be mapped to the function and **Esc** keys. VT100 and VT52 keys are mapped as follows:

VT100/VT52 Key	Press
PF1	F1
PF2	F2
PF3	F3
PF4	F4
BREAK	Ctrl End
ESC	Esc
Exit from Modem Telecommunications	Shift Esc

Creating Script Files

Scripts are text files, so they are easy to create with a word processor or text editor. To write your own script, use either Notepads or another word processor and save the file as you normally would. Script files must be in either the same directory as the Desktop Accessories program or in the DATA subdirectory; otherwise, Desktop Accessories cannot find and run the script. During installation, the script files are stored in the PCTOOLS\DATA directory. If you receive the message “unable to open file” when trying to run a script, just move or copy the script file into the directory containing Desktop Accessories or the DATA subdirectory.

Running a Script File

In addition to running a script file automatically by including it in the Script File Field in your PHONE.TEL phone directory, you can execute a script file at any time during a telecommunications session, even in manual mode. Whenever you want the script to run, perform the following:

1. Choose **Run Script** from the Actions menu in the Telecommunications window.

The Run Script dialog box appears.

2. Enter the name of the script file you want to run and choose **OK**.

The script files must be in the \PCTOOLS or \PCTOOLS\DATA directory.

Script File Commands

This section shows you the commands for writing script files and how script files are used in Modem Telecommunications.

Use the following commands to write your own script files to perform certain actions after you have connected with a remote computer. Commands can be in uppercase or lowercase letters.

* *comment*

The asterisk (*) marks a message that the computer does not recognize as a command. Use asterisk (*) messages to remind yourself what the script file is doing.

:LABEL

The :LABEL command marks a particular place in a script file for future reference. Use it with the GOTO, GOSUB, or IF statements so you can easily move from place to place in your script file. Only the first eight characters of a label are used.

DATABASE *variable*

The DATABASE command, combined with the v1 and v2 variables, allows you to send the contents of up to two specified fields in a Desktop Accessories database. This works in conjunction with the Database and Field options in the Edit Phone Directory dialog box.

For example,

- a. Your script contains the line DATABASE v1 v2.
- b. Your MCI Mail phone entry for the Database option is C:\PCTOOLS\DATA\REP.DBF.
- c. You enter MCI_ID for the Field 1 option and FAX for the Field 2 option.
- d. Modem Telecommunications scans the path, then locates and opens the database file you specified (REP.DBF).
- e. You select the record that contains the fields you want to send (MCI_ID, FAX).
- f. Modem Telecommunications then places the contents of the two specified fields in their respective variables.

Field 1 contents are always stored in v1; Field 2 contents are always stored in v2.

If you only want to send one field entry, leave out one of the variables in the script command. For example, if you are sending electronic mail using the MCI Mail phone entry and only want to include the MCI_ID (Field 1), type

DATABASE v1

If you want Modem Telecommunications to send a different name and number, you can press **Esc** when the database is activated (instead of selecting a database record). This closes the database file and returns you online to a "?" prompt, so you can enter a name or number manually. What you type is placed into the appropriate variable.

```
DOWNLOAD protocol "file name "  
DOWNLOAD protocol variable  
DOWNLOAD ZMODEM  
DOWNLOAD KERMIT
```

The DOWNLOAD command tells Modem Telecommunications to receive a file from the remote system. The protocol can be ASCII or XModem. If the specified file already exists, it is deleted before receiving the new file. ZModem and Kermit do not accept a file name.

NOTE Before you use this command in a script, the script must contain commands that tell the remote system to download a file using the same protocol as the Download command, and the remote system must be ready to send the file.

Examples:

- The following script uses the XModem protocol to receive the file C:\BUDGET\MONTH.END:

```
DOWNLOAD XMODEM "C:\BUDGET\MONTH.END"
```
- The following script uses the ASCII protocol to receive the file whose name has been stored in the variable v1:

```
DOWNLOAD ASCII V1
```
- After responding to the prompts to do an ASCII download, a single Return often tells the remote system to begin transferring. If the remote system always displays the message "***TRANSFER COMPLETE***" upon completion, the following script segment can be used to receive the file:

```
DOWNLOAD ASCII "C:\MYFILE" *Name to be received  
SEND " " *Return to start transfer  
WAITFOR "***TRANSFER" *String when done  
  
ERROR string  
ERROR variable
```

The ERROR command displays the message contained in *string* or *variable* in a typical dialog box.

GOSUB label

The GOSUB command changes the flow of your script to another line starting with :label. This command allows you to incorporate subroutines into your scripts. You may execute up to five GOSUB routines before using a RETURN command. This command makes it possible for you to execute repetitive tasks, without supplying a different label each time.

GOTO label

The GOTO command enables you to change the flow of your script to another line starting with :label.

HANGUP

The HANGUP command hangs up the phone or disconnects the file transfer after an unattended file transfer. This prevents you from accumulating a large telephone charge.

```
IF variable [=|<>|CONTAINS] string GOTO label
IF variable [=|<>|CONTAINS] string GOSUB label
IF variable [=|<>|CONTAINS] string RETURN
```

The IF command is a decision-making command. If the variable either equals the string, does not equal the string, or contains the string, it redirects the flow of your script:

- To the line starting with ":label" using the GOTO command.
- To the subroutine starting with ":label" using the GOSUB command.
- To the statement after the last GOSUB command executed using the RETURN command.

For example, if your script contains the following statement:

```
IF v1 CONTAINS "download" GOTO download
```

when the computer detects "download" anywhere within variable 1, it looks for the label "download" and continues.

INPUT variable

The INPUT command stores up to 80 characters from the keyboard, ending with a return or line feed, and places them in the v1, v2, v3, v4 , v5, or v6 variable.

PAUSE

PAUSE *number*

The PAUSE command pauses execution of a script for a specified number of seconds. Using PAUSE without a specified number pauses for one second.

For example, this script prints a message on the screen and pauses five seconds for you to read it:

```
PRINT "You are now connected. . . "
PAUSE 5

PRINT variable
PRINT "string"
```

The PRINT command displays the value of the specified variable or the character string on the screen.

Optionally, you can follow the PRINT command with a semicolon (;) to indicate that you do not want to print a Return character at the end of the line. For example,

- a. To create a script that allows you to type a file name (which is in v1) from the keyboard and then displays "Now sending *filename* to the office," enter the following:

```
PRINT "Enter filename";
INPUT v1
PRINT "Now sending ";
PRINT v1;
PRINT "to the office"
```

- b. The screen appears as follows:

```
Enter filename? C:\MYFILE
Now sending C:\MYFILE to the office
```

RECEIVE *variable*

The RECEIVE command captures a character string sent from the remote computer and stores it in a variable for use later in your script. The character string can be up to 80 characters long and is ended at the first return or line feed received. If nothing is received in 10 seconds, the variable is set to null.

You can designate up to six different character strings to be placed into the variables the script function uses: v1, v2, v3, v4, v5, or v6. For example, if you place RECEIVE at the start of your script, the initial prompt issued by the remote computer is saved in a variable name. You can then use this variable later in your script.

RETURN



The RETURN command ends a GOSUB routine. Once a RETURN command is used, the flow of the script continues to the next statement following the GOSUB in the script.


```
SEND variable
SEND "string"
SEND User ID
SEND Password
```

The SEND command allows you to send a message to the remote computer. You can send either variables (v1, v2, v3, v4, v5, or v6) or character strings, and the message is followed by a carriage return to indicate the end of the message. For example, if you used an INPUT v2 command previously, the script sends what you typed to the remote computer. The SEND command also recognizes the User ID and Password options, so you can type one of the following in your script rather than placing User ID or Password in a variable or quote string:

```
SEND USERID
SEND PASSWORD
```

Modem Telecommunications recognizes the User ID and Password entries you included in the Edit Phone Directory dialog box and applies them when a script file is processed.

Character strings must be enclosed in quotation marks ("*name*"), and can include the ^ character to indicate a control character. For example, ^C sends  . To produce a quote within a string, type ^".

Optionally, you can follow the SEND command with a semicolon (;) to indicate that you do not want to send a Return character at the end of the line. For example, a local bulletin board system may require you to type a single letter to choose an operation from its menu (such as "D" for downloading files) without pressing . The following script shows you how to send the D command without also sending the Return character:

```
WAITFOR "Enter choice (ABCDE) "
SEND "D";

UPLOAD protocol "filename"
UPLOAD protocol variable
```

The UPLOAD command tells Modem Telecommunications to begin sending a file to the remote system. If the specified file does not exist, the script cancels the upload operation but continues with the script. The protocol may be either XModem, ZModem, Kermit, or ASCII.

NOTE Before you use this command in a script, the script must contain commands that tell the remote system to upload a file using the same protocol as the Upload command, and the remote system must be ready to receive the file.

Examples

- The following script uses the XModem protocol to send the file C:\MEMOS\TODAYS.NWS:

```
UPLOAD XMODEM "C:\MEMOS\TODAYS.NWS"
```
- The following script uses the ASCII protocol to send the file whose name has been stored in the variable v2:

```
UPLOAD ASCII v2
```

```
WAITFOR "string"
```

The WAITFOR command halts execution of the script until the specified string is issued by the remote computer. The WAITFOR command ignores the case of the data received.

Script File Test Commands

The following commands can be used to help you find errors in script files and should be removed from the script after you have written and tested it.

ECHO

The ECHO command toggles on and off the display of characters received from the remote computer: ECHO ON turns it on, ECHO OFF turns it off. This can help if you are testing a new script or trying to determine why an existing script is not working properly.

TRON

The TRON command (Trace On) displays the commands in your script file on the message bar at the bottom of your screen. When the command is displayed, the script pauses until you press the **Spacebar** to execute the command. Pressing **Esc** cancels any further execution of the script.

TROFF

The TROFF command (Trace Off) executes the script command without pausing or displaying the scripts on the message bar. In effect, it turns off the TRON command. Using TRON and TROFF together enables you to trace through a portion of a script that is giving you problems.

Electronic Mail

Electronic mail allows you to send and receive electronic mail messages, using MCI Mail, CompuServe, or EasyLink. You can send or receive electronic mail immediately or at a scheduled time. You can also send electronic mail from Notepads or Outlines, and attach files to the messages you send.

Desktop Accessories must be installed memory-resident in order for mail to be sent or received on a scheduled basis.

Here's what you'll find in this chapter:

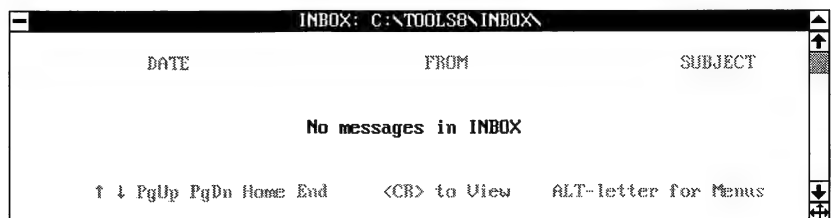
- **Starting Electronic Mail** explains how to start Electronic Mail from PC Tools Desktop and describes the features of the window.
- **Configuring Electronic Mail** explains how to select a mail service, set schedules and specify mail storage directories.
- **Creating a Mail Message** explains how to create and send a mail message.
- **Reading Mail Messages** explains how to read mail messages on demand.
- **Viewing Mail Messages** explains how to view stored mail at any time.
- **Deleting Mail Messages** explains how to delete mail.

Starting Electronic Mail

- Choose **Electronic Mail** from the Accessories menu in PC Tools Desktop. A window appears displaying a list of messages in your inbox.

The Electronic Mail Window

The first time you use Electronic mail, the window is empty. When you start Desktop Accessories a dialog box appears, showing that messages are waiting.



Function Keys

Electronic Mail uses the following function keys in addition to the standard Desktop Accessories keys described in the *Starting Desktop Accessories* chapter in this part:

Function Key	Description
F4 Inbox	Displays messages in the Inbox directory.
F5 Outbox	Displays messages in the Outbox directory.
F6 Sent	Displays messages in the Sent directory.
F7 Read	Connects to the mail service, reads any mail messages waiting for you, and places them in your inbox.
F8 Create	Creates a new message to be sent.

Configuring Electronic Mail

Before you can send electronic mail from Desktop Accessories, you need to configure four components of the Electronic Mail application:

- Select an electronic mail service.
- Set a schedule for sending electronic mail messages automatically.
- Set a schedule for reading electronic mail messages automatically.
- Specify directories for storing incoming, outgoing, and sent messages. The default directories are: INBOX for incoming messages, OUTBOX for outgoing messages, and SENT for messages that have been sent.

Selecting an Electronic Mail Service

Electronic Mail supports three electronic mail services: MCI Mail, CompuServe, and EasyLink.

1. Choose **Mail Service** from the Setup menu.



2. Select a service.
Selecting **No Service** disables all sending and receiving of electronic mail.
3. Choose **Configure**.

4. Enter information in the first Configure Mail dialog box.

Phone: Shows the service's local phone number and any additional commands used by your modem to control phone dialing. Spaces, dashes, and parentheses are ignored, so you can type a phone number as you normally would: (800) 555-9978. This field may contain up to 25 characters.

User ID: Shows the user ID provided to you by the service, a maximum of 25 characters. This identifies you when you log on to the service. Upper and lowercase are differentiated, so be sure to enter the ID exactly as it was provided to you by the service.

Password: Displays the password provided to you by the service, a maximum of 21 characters. This password ensures that only you and others who know your password can access the mail service.

Baud Rate: Shows the speed at which the transmission takes place. The higher the number, the faster the transmission. The number must be less than or equal to the manufacturer's rated speed for the modem you are using and must match the system you are calling.

Dialing: Shows the dialing mode your phone line uses, either tone or pulse.

Port: Shows the communications port where your modem is connected. To use the COM3 or COM4 port, you must start Desktop Accessories using the /C3 or /C4 command-line option. See the *Desktop Accessories Command-Line Options* chapter in this part for more information.

The remaining communications settings required for each mail service have been preconfigured for you in the file PHONE.TEL. For complete information on the use and editing of PHONE.TEL, see the *Modem Telecommunications* chapter in this part.

5. Choose **OK**.

Setting a Schedule for Sending Electronic Mail

Electronic Mail allows you to optionally create a schedule for automatically sending mail messages you have created. To send mail messages automatically, you must run Desktop Accessories as a memory-resident application.

NOTE If a data transmission error occurs when Electronic Mail is attempting to send messages according to a schedule, a message is placed in the Inbox directory to inform you that the attempt to send messages failed.

1. Choose **Send mail schedule** from the Setup menu.



2. Enter information in the Send Mail Schedule dialog box.

Every: Specifies the interval at which to send mail messages. To disable automatic sending of mail, enter a zero (0) in this field or leave it blank. The default setting is two.

Start: Specifies the time at which the first send begins. Add an 'a' to indicate morning or a 'p' to indicate afternoon. For example, 9:00a indicates 9 o'clock in the morning while 9:00p indicates 9 o'clock in the evening. The default setting is 9:30a.

End: Specifies the time after which no electronic mail should be sent. Add an 'a' to indicate morning or a 'p' to indicate afternoon. For example, 9:00a indicates 9 o'clock in the morning while 9:00p indicates 9 o'clock in the evening. The default setting is 5:30p.

When: Specifies whether to send mail every day or on work days only. The default setting is work days. Work days are defined in the EMAIL.TM file. To change the definition of workdays, edit the EMAIL .TM file using the Appointment Scheduler. For more information, see the *Appointment Scheduler* chapter in this part.

For example: Entering 2 in the **Every** field with a **Start** time of 9:00a, an **End** time of 5:00p, and **When** set to work days causes messages waiting in the Outbox to be sent automatically on workdays at 9:00 a.m., 11:00 a.m., 1:00 p.m., 3:00 p.m., and 5:00 p.m.

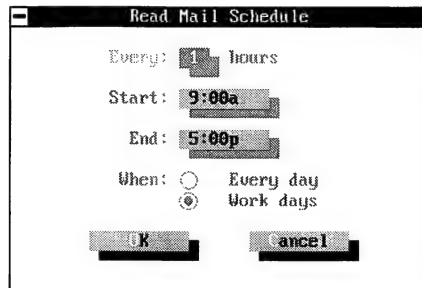
Times can also be specified in 24-hour format by eliminating the 'a' and 'p' designators. For example, entering 0900 is the same as entering 9:00a, while entering 2100 is the same as entering 9:00p.

3. Choose **OK**.

Setting a Schedule for Reading Electronic Mail

Just as you can schedule automatic sending of mail messages, you can also schedule times for automatic reading of mail messages. To read mail messages automatically, you must run Desktop Accessories as a memory-resident application.

1. Choose **Read mail schedule** from the Setup menu.



2. Enter information in the Read Mail Schedule dialog box.

Every: Specifies the interval at which to read mail messages. To disable automatic reading of electronic mail, enter a zero (0) in this field or leave it blank. The default setting is one.

Start: Specifies the time at which the first read begins. Add an 'a' to indicate morning or a 'p' to indicate afternoon. For example, 9:00a indicates 9 o'clock in the morning while 9:00p indicates 9 o'clock in the evening. The default setting is 9:00a.

End: Specifies the time after which no electronic mail should be read. Add an 'a' to indicate morning or a 'p' to indicate afternoon. For example, 9:00a indicates 9 o'clock in the morning while 9:00p indicates 9 o'clock in the evening. The default setting is 5:00p.

When: Specifies whether to send mail every day or on work days only. The default setting is work days. Work days are defined in the EMAIL.TM file. To change the definition of workdays, edit the EMAIL .TM file using the Appointment Scheduler. For more information, see the *Appointment Scheduler* chapter.

For example: Entering 2 in the **Every** field with a **Start** time of 9:00a, an **End** time of 5:00p, and **When** set to work days causes the system to connect to the mail service and look for new mail messages automatically on workdays at 9:00 a.m., 11:00 a.m., 1:00 p.m., 3:00 p.m., and 5:00 p.m.

Times can also be specified in 24-hour format by eliminating the 'a' and 'p' designators. For example, entering 0900 is the same as entering 9:00a, while entering 2100 is the same as entering 9:00p.

3. Choose **OK**.

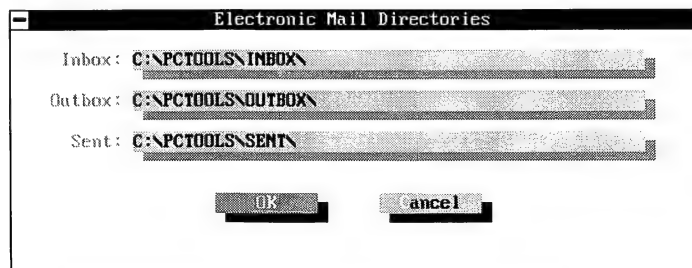
Specifying Electronic Mail Storage Directories

Electronic Mail stores three types of messages:

- Those sent to you by others are stored in an Inbox.
- Those you create are stored in an Outbox while waiting to be sent.
- After mail messages have been sent, they are stored in a Sent directory.

You can use the default directories created automatically for each of these storage areas, or you can use directories of your choosing.

1. Choose **Mail Directories** from the Setup menu.



2. Enter information in the Mail Directories dialog box.

Inbox: Specifies the complete path and directory where received mail and attached files are stored. The default directory is INBOX. You can view messages in this directory using the **View Inbox** command in the View menu.

Outbox: Specifies the complete path and directory where messages waiting to be sent are stored. The default directory is OUTBOX. You can view messages in this directory using the **View Outbox** command in the View menu.

Sent: Specifies the complete path and directory where messages that have been sent are stored. The default directory is SENT. After messages you create have been sent, they are stored in this directory. You can view the messages in this directory using the **View Sent** command in the View menu.

3. Choose **OK**.

Creating a Mail Message

1. Choose **Create mail message** from the Actions menu or press **F8**.

A Notepads file opens with the mail message header information filled in for you.

2. Enter the mail message addressing information.

Addressing an electronic mail message is just like setting up an interoffice memo. You specify who the message is addressed to (TO:), who it is being sent from (FROM:), anyone who should receive a copy (CC:), and the subject (SUBJECT:).

You can also specify the path (if it's not a file in the directory where the PC Tools environment variable points) and file name of any files you want to send as attachments to the email message (ATTACH:). You can add up to 10 attachments (10 separate ATTACH: lines) and since you can use wildcards in file specifications, send as many files as you need.

For example, a message that will be sent via MCI Mail might look like this:

```
TO: 111-2233
CC: 555-1880
SUBJECT: Commute is great!
ATTACH: C:\COMMUTE\RAVES.TXT
The press is wild about new Commute!
```

The prompts you see depend on the electronic mail service you are accessing. MCI Mail and EasyLink do not use the FROM: line in their addresses; CompuServe and EasyLink do not use the CC: line.

NOTE You can send messages to users on other electronic mail services accessible through MCI Mail by adding the fields EMS: and MBX: in the message addressing information.

EMS indicates the electronic mail service and MBX indicates the addressee's user ID on that service. The EMS prompt must immediately follow the TO prompt with no intervening prompts. Immediately after the EMS prompt, add all MBX prompts. Multiple MBXes may be specified and must follow each other. The subject is always at the end.

For example:

```
TO: 111-2233 (EMS)
EMS: Cajun Computers
MBX: Paul Mann
CC: 555-1880 (EMS)
EMS: Louisiana Power
MBX: Edward Lewis
MBX: Sean Davis
SUBJECT: Commute is great!
ATTACH: C:\COMMUTE\RAVES.TXT
```

3. Choose **Send Electronic Mail** from the File menu.

If you change your mind and do not want to send this message, choose **Exit Without Saving** from the File menu to return to the Electronic Mail application.

4. Select a send option.

Send Immediately: Sends the mail immediately via the electronic mail service you configured.

Send at Scheduled Time: Stores the mail in the outbox directory for sending via the configured electronic mail service at the time specified in the Send Mail Schedule.

5. Choose **OK**.

Do not change the file name. Electronic Mail automatically assigns a file name to your message and stores it in the Outbox directory you specified in the Mail Directories dialog box.

Reading Mail Messages

You can read mail messages automatically at the times scheduled in the Read Mail Schedule dialog box or on demand. To read on demand:

- Choose **Read Mail Now** from the Actions menu or press **F7**.

Electronic Mail dials the service you specified in the Electronic Mail Service dialog box, reads any mail messages waiting for you, and places them in your inbox. You can view them by following the steps below.

Viewing Mail Messages

You can view the mail stored in the Inbox, Outbox, and Sent directory at any time.

While you are viewing Inbox messages, the following function keys are available:

Function Key	Description
F4 Delete	Deletes the message being viewed and opens the next message.
F5 Reply	Opens a new message file with the TO: and SUBJECT: lines mirroring the FROM: and SUBJECT: lines in the message being viewed.
F8 Next	Closes the message being viewed and opens the next message in the list.

1. Choose **View Inbox**, **View Outbox**, or **View Sent** from the View menu or press **F4** (for the inbox), **F5** (for the outbox), or **F6** (for the sent directory).
Mail stored in the directory you specified in the Mail Directories dialog box are listed.
2. Select the message you want to view.
3. Press **Enter**, double click the message, or choose **View Highlighted Message** from the Actions menu to view the text of the selected message.

NOTE If you make changes to a message you view in the Outbox, you must choose **Send Electronic Mail** from the File menu, select **Send at Scheduled Time**, and choose **OK** to save the changes. Otherwise, the file in the outbox will not be updated with your changes and the original message will be sent.

Deleting Mail Messages

1. Choose **View Inbox**, **View Outbox**, or **View Sent** from the View menu.
Mail stored in the directory you specified in the Mail Directories dialog box appears.
2. Select the message you want to delete.
3. Choose **Delete Highlighted Message** from the Actions menu.
The selected message is permanently deleted from the directory.

Fax Telecommunications

Fax Telecommunications allows you to send and receive faxes through your computer. You can use Fax Telecommunications if you have a fax board in your computer or anywhere in your Novell NetWare network. A fax board is an add-on board that allows your computer to perform many of the same functions as a facsimile machine.

For example, you can send text files directly from your computer to a facsimile machine or to another computer with a fax board, create a fax in Desktop Accessories Notepads application, create a cover page to accompany your fax, set a date and time to send your fax, check the Fax Log for the status of fax messages you have received or previously sent, and transmit fax messages automatically in the background.

NOTE *The Fax Telecommunications menu items appear in the Desktop Accessories menu only after you have configured fax support during your configuration of Startup Programs. See Part 1 Getting Started in Volume 1 for information.*

Fax Telecommunications is compatible with the following fax boards:

- Connection CoProcessor (Intel Corp.)
- SatisFAXtion Board (Intel Corp.)
- SpectraFax (SpectraFax Corp.)

Fax Telecommunications also allows several users to use a single fax board on a network. If a fax board is installed in any computer on a Novell network, anyone working on the network can send faxes using that fax board. They can also access the Fax Log to check on the status of files that have been sent and received. For information about using Fax Telecommunications on a network, see “Running Fax Telecommunications on a Network” on the next page.

Here’s what you’ll find in this chapter:

- **Setting Up the System** explains that you need to specify a fax directory to be used by Fax Telecommunications before using the program. This configuration is done using the Startup Programs option in PC Tools Desktop or from PC Config.
- **Running Fax Telecommunications on a Network** explains how to set up your system manually for use with a network fax board.
- **Starting Fax Telecommunications** explains how to start the program and describes the window and function keys.

- **Configuring Fax Telecommunications** explains how to define the directory where faxes are sent, whether you want to send cover pages with your faxes, the time format to use, and who the faxes are being sent from.
- **Sending a New Fax** explains how to create a fax entry in the Fax Details dialog box.
- **Sending an Existing Fax** explains how to send a fax without having to re-enter Fax Details information.
- **Changing an Existing Fax Entry** explains how to edit existing fax entries.
- **Deleting a Fax Entry** explains how to delete existing fax entries.
- **Checking the Fax Log** explains how to check the status of faxes that have been sent and received.
- **Searching for Fax Log Entries** explains how to search for Fax Log entries that display particular values in the fields on the Fax Log screen.
- **Deleting Fax Log Entries** explains how to delete Fax Log entries that are no longer needed.
- **Changing the Automatic Update Interval** explains how to specify when to update the Fax Log.

Setting Up the System

When you configured startup programs, you had the option of setting up fax support. If you chose this option, you specified a fax directory to be used by Fax Telecommunications. Skip to the “Starting Fax Telecommunications” section.

If you did not choose to install fax support during installation, choose the Startup Programs command from the Configure menu in PC Tools Desktop or from PC Config and modify your system’s startup programs to include fax support. See *Part 1 Getting Started* in Volume 1 for instructions.

Running Fax Telecommunications on a Network

When you configured your startup programs, you had the option of setting up fax support. If you chose this option, you specified a fax directory to be used by Fax Telecommunications. Skip to the “Starting Fax Telecommunications” section.

If you did not choose to install fax support during configuration, you can set up your system for Fax Telecommunications manually.

1. Install the fax board and the software that came with it in a machine on the network.

The board cannot be installed in a network server. Refer to your fax board manuals for more information on this procedure.

2. Create a directory on the network that can be accessed by all network users who use Desktop Accessories to send and receive faxes.

This directory is used by Desktop Accessories to hold faxes before they are actually sent by the fax board software.

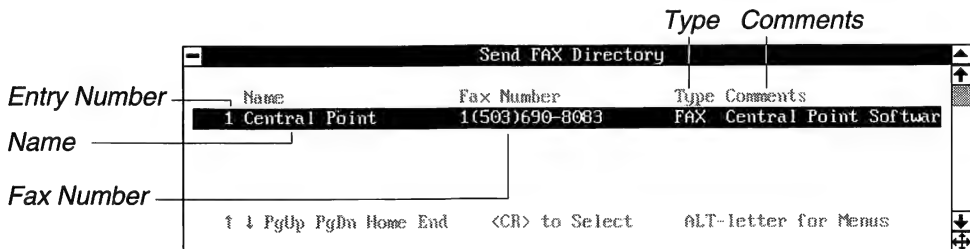
3. Configure Fax support using PC Config.

When prompted to do so, supply the name of the directory you created in step 2 above.

This step installs the directory name in Fax Telecommunications for users on the network who use the network-installed version of Desktop Accessories.

Starting Fax Telecommunications

- Choose **Fax** from the Accessories menu in PC Tools Desktop.



The Fax Telecommunications Window

More information on individual fax fields can be found in the section "Sending a New Fax" later in this chapter.

In addition to the standard PC Tools window components, the Fax Telecommunications window contains the following elements:

Entry Number: Shows the number of the entry in the Send Fax Window (allows up to 99 entries).

Name: Shows the fax recipient.

Fax Number: Shows the destination fax number.

Type: Shows whether you are sending a file in fax mode or non-fax mode. If it is in fax mode, it displays "Fax;" if it is in non-fax mode, it displays "File." The Fax-Board-to-Fax-Board option in the Fax Details dialog box must be selected for the type to say "File."

In fax mode, Fax Telecommunications converts the faxes you are sending into a format that can be understood by facsimile machines and other fax boards.

In non-fax mode, Fax Telecommunications does not convert the files you are sending; it sends them just as they are, similar to the way a modem sends files. In non-fax mode, you can send any type of file, including program (.EXE) files that you cannot send in fax mode. However, you can send files in non-fax mode only to another fax board supported by Fax Telecommunications, not to a facsimile machine.

Comments: Gives information about an individual fax entry. For example, if a fax is sent as a weekly report, this might say "Weekly Report."

Press **F1** for more information about screen features.

Function Keys

Fax Telecommunications uses the following function keys in addition to the standard Desktop Accessories keys described in the *Starting Desktop Accessories* chapter:

Function Key	Description
F4 Add	Lets you add a new entry to the Fax Directory Window.
F5 Edit	Lets you edit the selected entry.
F6 Delete	Deletes the selected entry.
F7 Send	Sends files to the selected fax entry.
F8 Log	Displays the Fax Log.

Configuring Fax Telecommunications

Before sending a fax, you need to configure Fax Telecommunications with basic information. For example, you need to define the directory the faxes are sent to, whether you want to send cover pages with your faxes, the time format to use, and who the faxes are being sent from. This is a simple procedure that saves you time later when you are sending faxes.

NOTE If you are running on a network, this was already set up by your network supervisor.

Setting the Fax Drive Option

1. Choose **Fax Drive** from the Configure menu.
2. Enter a new directory name (optional).
The default directory path points to the directory created for you during configuration. For more information on configuring fax support, see *Part 1 Getting Started* in Volume 1.
3. Choose **OK**.

Setting the Page Length

1. Choose **Page Length** from the Configure menu.
2. Enter the physical size of the pages that are used in the facsimile machine you are sending faxes to.
The default setting is 11 inches, so don't change it if you want to send letter-size faxes. If you are going to be sending faxes of only two or three sentences, you can set this to 2, so the page length is only 2 inches and you do not waste paper. You can change this setting at any time.
3. Choose **OK**.

Setting the Cover Page Option

1. Choose **Cover Page** from the Configure menu.
2. Select the correct setting for the Cover Page option.
Turn the Cover Page on if you generally want to send cover pages with your faxes; turn it off if you do not want to send cover pages.
If you turn on the Cover Page option, Fax Telecommunications gives you the opportunity to create a cover page in Notepads before sending a fax.
3. Choose **OK**.

Fax Telecommunications automatically includes a logo at the top of all your cover pages. This allows you to have a personalized logo at the top of your cover page, such as your company logo, if you like. The logo comes from the file PCTOOLS.PCX. You can change the contents of the file with a graphics editor that supports .PCX files, such as PC Paintbrush. If you create a new .PCX file to be used with your cover pages, it must be named PCTOOLS.PCX and be in the PC Tools directory.

Setting the Time Format

1. Choose **Time Format** from the Configure menu.
2. Select the time format you want to use: **AM/PM** or **24-hour**.
3. Choose **OK**.

Telling Fax Telecommunications Who is Sending Faxes

1. Choose **Sent From** from the Configure menu.
2. Type your name.
Next time you send a fax, your name appears in the Fax Details dialog box as the default, so you do not have to enter it every time you create a new fax.
3. Choose **OK**.

Some of the information used to configure Fax Telecommunications prints at the top of each fax page you send. This information includes who you are sending the fax to, who sent the fax, the date and time the fax was sent, and the page number of the fax.

Sending a New Fax

To send a new fax, you must create a fax entry in the Fax Details dialog box. This is stored in the Send Fax directory so that you can easily re-use it. You can then send a file previously prepared in Notepads, or you can create a file during the send procedure.

Adding a New Entry to the Send Fax Directory

1. Choose **Fax** from the Accessories menu in PC Tools Desktop.
2. Choose **Add A New Entry** from the Actions menu.
3. Enter the information in the Fax Details dialog box.

FAX Details

Date: 05/31/91

Time: 08:06 FAX Number:

From: Comments:

☒ Normal Resolution
☐ Fine Resolution
☐ FAX Board To FAX Board

Select Files and Send Make a new File and Send Cancel

Date: The date you want to send your fax. For your convenience, Fax Telecommunications automatically enters the current date, so do not change it unless you want to send a fax at a future time. Using the current date and time sends the fax immediately. For example, to send your fax on March 18, 1993, type "03/18/93."

Time: The time you want to send your fax. Fax Telecommunications automatically enters the current time; do not change it unless you want to send a fax at a future time. Using the current date and time sends the fax immediately.

For example, to send your fax at 11:05 p.m. when the rates are lower, enter "11:05p." The fax is sent automatically at that time.

From: Who the fax is from. This is preset in the Configure menu; do not enter anything unless you want to change the name (32-character limit).

To: Type the name of the person you are sending the fax to (32-character limit).

Fax Number: The fax number you want your fax sent to (32-character limit).

Comments: Optional comments that allow you to identify your fax entry so you can easily find it again. For example, if you send a fax on a weekly basis to a co-worker, you might type "Weekly Report." Since whatever you type appears in the Send Fax Directory window, this comment should be descriptive of the fax you are sending.

Normal Resolution: Select this option for most faxes that you send. This is faster than Fine Resolution, and your documents still appear reasonably clear if you are not sending graphics files.

Fine Resolution: Select this option if you want your fax to appear especially sharp, or if you are sending graphics files. This is slower than Normal Resolution.

Fax Board to Fax Board: Select this if you want to send binary files, which cannot be sent in an understandable format as faxes. A program file like DESKTOP.EXE is an example of a binary file. You can send binary files *only* to another fax board supported by Fax Telecommunications, not to a facsimile machine. This feature allows you to use your fax board as you would use a modem.

If you want to send binary files, you must choose the Fax-Board-To-Fax-Board option. Press **(F1)** for details.

4. Select the files to send that make up your fax message.

The procedures that follow explain how to select files that you have previously created or to create a file to send.

Sending an Existing Notepads File

1. Choose **Select Files And Send** from the Fax Details dialog box.
2. Select a file you want to send in the Files To Select dialog box, then choose **Add**.
You can select multiple files to send.
3. Choose **Send** to send the files, then proceed as follows:
 - ▶ If you *did not* configure Fax Telecommunications to include a cover page, a dialog box tells you that your fax has been sent. Go to step 6.
 - ▶ If you *did* configure Fax Telecommunications to include a cover page with your fax, a dialog box asks if you still want to create a cover page. Proceed to the next step.

4. Choose **OK** if you want to create a cover page.

This activates a new Notepads file for you to type your cover page.

NOTE Fax Telecommunications always uses the *COVER.TXT* file for cover pages.

5. Type what you want your cover page to say and press **(Esc)** or click the close box to save the Notepads file.
6. Choose **OK** when a dialog box tells you that your fax has been sent.
The Send Fax Directory appears and the fax you just created appears in the list.

Creating and Sending a File

1. Choose **Create A New File And Send** from the Fax Details dialog box.
2. Type the name of the file you want to create for your fax in the Create a Fax dialog box, then choose **OK**.
This opens a new Notepads file for you to type your fax document.
3. Type your fax message and press **[Esc]** or click the close box to save it. Then choose one of the following actions.
 - ▶ If you *did not* configure Fax Telecommunications to include a cover page, a dialog box tells you that your fax has been sent. Go to step 6.
 - ▶ If you *did* configure Fax Telecommunications to include a cover page with your fax, a dialog box asks if you still want to create a cover page. Proceed to the next step.
4. Choose **OK** if you want to create a cover page.
This activates a new Notepads file for you to type your cover page.
5. Type your cover page message and press **[Esc]** or click the close box to save the Notepads file.
6. Choose **OK** when a dialog box tells you that your fax has been sent.
The Send Fax Directory appears and the fax you just created appears in the list.

Sending an Existing Fax

After you have created a fax entry in the Fax Details dialog box, it is stored in the Send Fax directory, so you can send a fax without having to re-enter Fax Details information.

When you send an existing fax entry, you have the option of sending the same files that you selected to send when you created the fax entry. For example, let's say you want to send a weekly status report to your boss. You can create the status report in a Notepads file called STATUS.TXT. After you have created a fax entry in the Send Fax Directory using the procedure in the previous section, all you need to do is update the STATUS.TXT file with Notepads once a week. Then send the entry in the Send Fax Directory as shown in the following procedure.

1. Choose **Fax** from the Accessories menu in PC Tools Desktop.
2. Select the fax entry that displays the name and fax number of the person you want to send your fax to.

3. Choose **Send Files To The Selected Entry** from the Actions menu.
4. Choose **Select Files And Send** from the Fax Details dialog box.

This activates the Files To Send dialog box, which lets you choose **Send** (to send the file(s) you sent previously) or **Choose Different Files** (to select other files to send instead).
5. Choose **Send**, then choose one of the following actions.

If you select **Choose Different Files**, the Files To Select dialog box appears. Choose **Add** after each file you select, then choose **Send**.

 - ▶ If you *did not* configure Fax Telecommunications to include a cover page, a dialog box tells you that your fax has been sent. Go to step 8.
 - ▶ If you *did* configure Fax Telecommunications to include a cover page with your fax, a dialog box asks if you still want to create a cover page. Proceed to the next step.
6. Choose **OK** if you want to create a cover page.

This activates a new Notepads file for you to type your cover page.
7. Type your cover page message and press **[Esc]** or click the close box to save the Notepads file.
8. Choose **OK** when a dialog box tells you that your fax has been sent.

The Send Fax Directory appears and the fax you just created appears in the list.

Changing an Existing Fax Entry

1. Choose **Fax** from the Accessories menu in PC Tools Desktop.
2. Choose **Edit The Current Entry** from the Actions menu.
3. Type the information you want in the Fax Details dialog box.
4. Choose **Select Files And Send** or **Create A New File And Send**.

See the procedures described in "Sending an Existing Fax" or "Sending a New Fax" for details on completing a fax transmission.

Deleting a Fax Entry

1. Choose **Fax** from the Accessories menu in PC Tools Desktop.
2. Select the entry you want to delete from the Send Fax directory.
3. Choose **Delete The Current Entry** from the Actions menu.

Checking the Fax Log

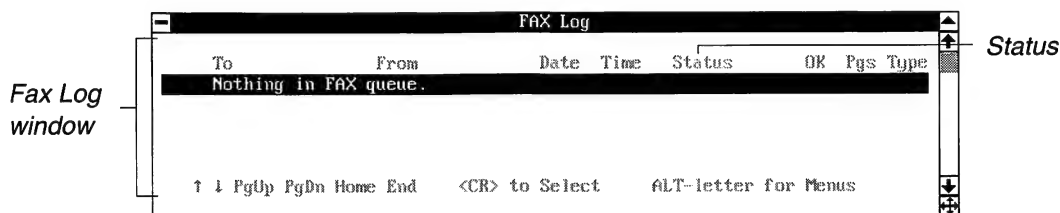
The fax log is like a status report; it tells you the status of faxes that have been sent and received.

- ▶ Choose **Telecommunications** ► **Check the Fax Log** from the Desktop Accessories menu.

or

- ▶ Choose **Check the Fax Log** from the the Actions menu in Fax Telecommunications.

The Fax Log window is displayed.



In addition to the standard PC Tools window components, the Fax Log window contains the following elements:

Entry Number: Shows the number of the entry in the Fax Log Window (allows up to 99 entries).

To: Shows who a fax was sent to.

From: Shows the name of the person who sent the fax.

Date: Shows the date a fax was sent or is to be sent.

Time: Shows the time a fax was sent or is to be sent.

Status: Shows the condition of your fax transmission. For example, if you sent a fax that was successfully transmitted, the Status would be "Sent." Possible status definitions are:

Dialing: A fax number is still being dialed.

Sending: A fax is in the process of being sent.

Sent: A fax has been sent successfully to a facsimile machine or to another computer equipped with a fax board.

Receiving: A fax is in the process of being received by your fax board.

Received: A fax has been received successfully by your fax board from a facsimile machine or from another computer equipped with a fax board.

Aborted: You have canceled a fax transmission.

Error Messages: Your fax board is having trouble sending or receiving a fax, or the phone line is not working properly. "Non CCP" means one of the fax boards is not compatible with Fax Telecommunications; "Bad Phone, Drop" means there is a transmission problem in the phone lines. Try sending the fax again if you see either of these two messages.

OK: Indicates whether problems were encountered during the fax transmission. Displays "Yes" if there were no problems; displays "No" if there were problems (this means that either "Abort" or an error message code appears in the Status field). If you are in a hurry and want to quickly check the overall status of a fax, just check the OK field.

Pages: Indicates the number of pages in a fax. This reflects what you entered in the Send Fax Directory. For example, if you entered 2 for Page Length, and your fax is 10 inches long, the page count in the Fax Log would be 5. If you have a cover page, this is also included in the page total.

Type: Shows whether you are sending a file in fax mode or non-fax mode. In fax mode the type is "Fax;" in non-fax mode, the type is "File." The Fax-Board-To-Fax-Board option in the Fax Details dialog box must be selected for the type to be "File."

In fax mode, Fax Telecommunications converts the faxes you are sending into a format that can be understood by facsimile machines and other fax boards.

In non-fax mode, Fax Telecommunications does not convert the files you are sending; it sends them just as they are, similar to the way a modem sends files. In non-fax mode, you can send any type of file, including program (.EXE) files that you cannot send in fax mode. However, you can only send files in non-fax mode to another fax board supported by Fax Telecommunications.

Searching for Fax Log Entries

You can search for Fax Log entries that display particular values in the fields on the Fax Log screen. For example, you can search for all faxes either sent to or received from a particular person or on a certain date, or you can search for all faxes that have a status of "Sent."

1. Choose **Search** from the Actions menu.
2. Enter the text you want to search for.

For example, enter the name Dennis Taylor.

3. Choose **OK**.

All Fax Log entries that meet the search criteria appear on the screen. In our example, all faxes that have the name Dennis Taylor listed in either the To or From field are found.

Deleting Fax Log Entries

To avoid having a cluttered Fax Log, you can delete Fax Log entries that are no longer needed. You can also use this procedure to stop a fax you sent from the Send Fax Directory before the status is "Sent."

1. Select the Fax Log entry you want to delete.
2. Choose **Delete The Selected Entry** from the Actions menu.

If you did not send the fax you are deleting, a dialog box warns you that the fax is not yours. Choose **OK** if you still want to delete it; choose **Cancel** to return to the Fax Log.

Changing the Automatic Update Interval

You can determine how often to update the Fax Log with the AutoUpdate command.

1. Choose **AutoUpdate** from the Configure menu.
2. Type the interval of time (in seconds) you want to elapse between Fax Log updates.
3. Choose **OK**.

At the interval you defined, the Fax Log is updated. A message appears at that interval telling you that the update is occurring.

Macro Editor

A macro is a single instruction that plays back a sequence of instructions. Macros speed your work by reducing the number of actions you must take to perform complex or repetitive tasks.

The Macro Editor lets you assign a sequence of keystrokes to a key or key sequence. The keystrokes can be any combination of text or commands. For example, you can create a macro that inserts your company's name in a file whenever you press a key.

Use macros with the Appointment Scheduler to automate tasks while you are away. For example, you can create a macro to run the Compress program, which defragments your hard disk, every night at midnight. See the *Appointment Scheduler* chapter in this part for information on scheduling macros.

NOTE *Macros work within Desktop Accessories or from the DOS prompt, but not within other PC Tools programs.*

Insert macros into your files to send commands to the printer. This allows you to set up the printer and print files using special printer features, such as boldface and italics. Desktop Accessories includes macros for printing with the IBM Proprinter, Hewlett-Packard Laserjet, Epson FX-80, and any Panasonic printers.

When you play back a macro in an application, each keystroke, command, and instruction is carried out, starting at the cursor's current location. After a macro completes, you can continue working in the application as you normally do.

Macro playback is affected by whether you run Desktop Accessories as a memory-resident or standard application. If Desktop Accessories is run as a standard application, macros play back only in Desktop Accessories. When Desktop Accessories is run memory-resident, macros play back in any application.

NOTE *Macros do not play back when Windows is running.*

Here's what you'll find in this chapter:

- **Starting the Macro Editor** explains how to run the program and describes the screen components and function keys.
- **Macro Components** explains the various parts of a macro.

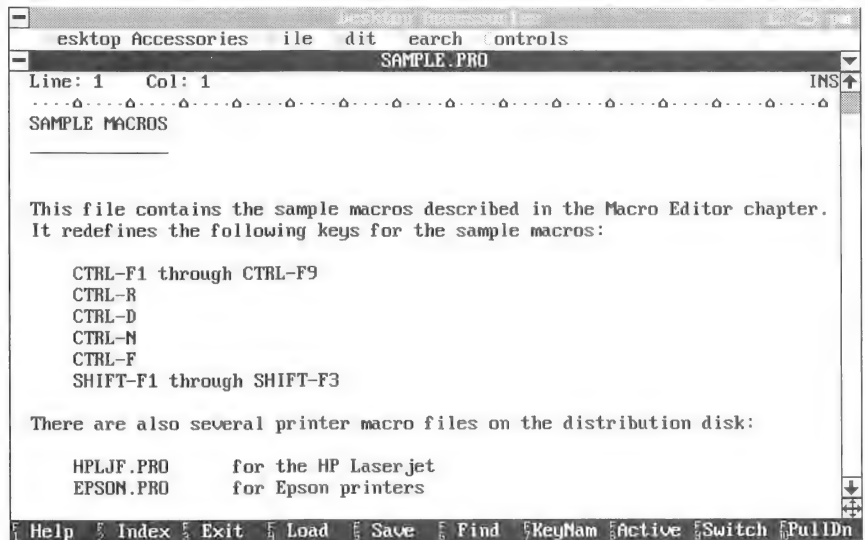
- **Guidelines for Creating Macros** describes the rules the macros must follow to work correctly.
- **Creating a Macro** explains how to write, test, and save a macro.
- **Loading an Existing Macro** explains how to load an existing macro.
- **Editing a Macro** explains how to edit an existing macro.
- **Changing the Macro Activation Setting** explains how to change what activates a macro.
- **Saving a Macro** explains the steps involved to save a macro.
- **Saving Setup Options** explains the options that are saved with a macro.
- **Playing Back a Macro** describes how to test a macro.
- **Deleting a Macro** explains how to get rid of unwanted macros.
- **Deactivating Active Macros** explains how to turn off active macros.
- **Delaying Playback** explains how to delay the running of a macro.
- **Creating Macros with Learn Mode** explains a way to create macros automatically.
- **Using Macros for Specific Operations** details some of the ways you can use macros.
- **Keys Supported by the Macro Editor** lists the supported keys.

Starting the Macro Editor

1. Choose **Macro Editor** from the Desktop Accessories menu within Desktop Accessories.
The File Load dialog box appears.
2. Load an existing macro file or create a new one using the File Load dialog box.
See *Part 1 Getting Started* in Volume 1 or press **F1** for information about the File Load dialog box.

The Macro Editor Window

The elements of this window are the same as the Notepads window, however the menu items and function keys are different.



Press **F1** for more information about the Macro Editor screen.

Function Keys

Macro Editor uses the following function keys in addition to the standard Desktop Accessories keys described in the *Starting Desktop Accessories* chapter:

Function Key	Description
F4 Load	Opens the File Load dialog box.
F5 Save	Opens the Save File to Disk dialog box.
F6 Find	Opens the Find dialog box.
F7 KeyNam	Allows you to insert any literal key already used by Desktop Accessories for another function (such as F9) into the macro.
F8 Active	Opens the Macros Active dialog box.

Macro Components

You can create macros using the Notepads file that appears in the Macro Editor window. The following example shows you what a macro looks like in a macro file:

```
<begdef><ctrlj>macro editor<enddef>
```

This macro consists of four basic components:

Macro Component	Definition	As Seen in This Example
beginning	A label that marks the beginning of a macro definition. This label is always <begdef>.	<begdef>
keystroke	The key or key sequence that you press to “play back” the script. It must be contained within angular brackets.	<ctrlj>
script	The recorded sequence of characters and commands that are played back.	macro editor
ending	A label that marks the end of a macro definition. This label is always <enddef>.	<enddef>

This example assigns the script “macro editor” to the keystroke sequence **Ctrl** **J**. If the macro is active while you are working in an application, pressing **Ctrl** **J** at the same time types the words “macro editor.”

Guidelines for Creating Macros

When creating a macro, you need to remember a few rules:

- Macros must begin with the label <begdef> and end with <enddef>. The Macro Editor plays back only what appears between the <begdef> and <enddef> labels.
- The <begdef> label must start in the first column on the screen. The Macro Editor ignores tabs and carriage returns that are placed after the <begdef> label, so you can use them to make your macros easier to read.
- Descriptive comments about the function of a macro must be entered on a separate line *before* or *after* the macro definition. (To add a comment after you have finished typing in your macro, use insert mode. Just be sure that the <begdef> label begins in column 1 of the line it appears on.)

- Macro keystrokes, the names of special keys, and the `<begdef>` and `<enddef>` labels must be contained within angular brackets. Special keys include function key names, control keys, and cursor keys. A list of these keys appears at the end of this chapter.
- To add a key to your macro that has a special function assigned to it by Desktop Accessories, you must press **F7** before pressing the key to add. Pressing **F7** indicates that the Macro Editor should insert the key that follows in the macro instead of performing its usual Desktop Accessories function. Keys that Desktop Accessories assigns special functions to include function keys, **Alt**, and editing keys (for example, the arrow keys, **Ins**, **Del**, or **Backspace**).

Let's say you want to create a macro that includes **F1**. This macro will be used with a program other than Desktop Accessories. However, Desktop Accessories assigns the Help function to **F1**. To add **F1** to your macro without its assigned Help function, you must press and release **F7**, then press **F1**. To add the **Shift F1** or **Alt F1** key sequence to your macro, you don't need to press **F7** first. Desktop Accessories does not assign functions to these key sequences.

Compatibility with Other Programs

The Macro Editor is compatible with ProKey versions 4.0 and higher. You can load existing ProKey macro files directly into the Macro Editor, with a few exceptions:

- The Macro Editor does not support some keys that are supported by ProKey. A complete list of valid keys and key sequences appears at the end of this chapter.
- The Macro Editor does not support redefinition of the entire keyboard because it recognizes only the standard IBM BIOS scan codes.
- The Macro Editor does not include support for guarding macros or unique macro names.

Some applications included in PC Tools can be executed with additional options at the DOS command line (such as Compress). You can also use macros to activate these applications. However, you cannot use macros to choose commands from the pull-down menus in the PC Tools applications Compress and CP Backup. In some cases, these applications require you to confirm commands that modify a file or disk as the result of keystroke input. Therefore, these applications do not buffer keystrokes that would cause you to inadvertently bypass a confirmation process. Because keystrokes are not buffered in these applications, macros do not work.

Creating a Macro

The following sections show you how to perform the basic steps in creating a sample macro. These include writing, activating, saving, playing back or testing, and deleting the macro. This sample macro redefines the **Ctrl F4** key sequence to type the name “Desktop Accessories.”

To create a macro using Learn Mode, turn to the section “Using Learn Mode” later in this chapter.

Creating a New Macro File

1. Type the name of a new file in the File Load dialog box.
Be sure to choose a file name that describes the function to be performed by the macro so it will be easy for you to identify.
2. Choose **New**.
The Macro Editor screen appears with the cursor positioned in column 1 of the first line.

Describing the Macro

- ▶ Type a comment that describes what the macro does, and press **Enter**.
You can include any comment that is helpful to you when referring to the macro in the future. For this example, you might type

This macro displays Desktop Accessories when the CTRL-F4 key sequence is pressed.

Writing the Macro

1. Position the cursor in column one of a new line.
2. Press **Alt +** (from the main keyboard, not the numeric keypad), and the following line appears:

```
<begdef>
```


3. Press **Ctrl** **F4**, and the line changes:

```
<begdef><ctrlf4>
```

NOTE To assign the macro script to just **F4**, you must follow a slightly different procedure. First, press and release **F7**. Then press **F4**. The result on the screen is `<begdef><f4>`. Pressing **F7** lets you insert **F4** (or any other literal key) in your macro instead of doing what **F4** normally does in Desktop Accessories (that is, displaying the File Load dialog box). See the section “Guidelines for Creating Macros” earlier in this chapter for additional information.

4. Type

```
Desktop Accessories
```

and the following line appears:

```
<begdef><ctrlf4>Desktop Accessories
```

5. Press **Alt** **-** (from the main keyboard, not the numeric keypad) to display

```
<begdef><ctrlf4>Desktop Accessories<enddef>
```

6. Press **Enter**.

Activating the Macro

Before you use a macro, you need to activate it by specifying when it will play back. Whenever you save a macro file, the status of its activation option is saved also, so that you do not have to reactivate a file that was previously activated. All macro files defined as active are saved in memory, ready to play back when you press the designated key sequence.

1. Choose **Macro Activation** from the File menu or press **F8**.
2. Select an option in the Macros Active dialog box.
See the section “Changing the Macro Activation Setting” later in this chapter for information about dialog box options. For this example, select **Active Everywhere**.
3. Choose **OK**.
The dialog box closes and saves your macro file.

Editing the Macro

- ▶ Check the file for mistakes, make any required changes, and save it again, if necessary.

If you notice any errors, use the Notepads editing features to make changes to your file.

Your changes are saved automatically when you exit the Macro Editor window.

See the section “Playing Back a Macro” later in this chapter for instructions on testing your macro to make sure it performs as expected.

Loading an Existing Macro

Use one of the following procedures for loading an existing macro that you want to view or edit.

Loading a Macro File into a New Window

This procedure allows you to load a Macro Editor file without closing the current file. With this method, you can display up to 15 Macro Editor files simultaneously, as long as you do not have more than 15 Desktop Accessories windows open on the screen at once.

1. Choose **Macro Editor** from the Desktop Accessories menu within Desktop Accessories.

The File Load dialog box appears containing the names of the existing files, directories, and drives. The files created by the Macro Editor have a default extension of .PRO. Any files in the selected directory that have the .PRO extension appear in the dialog box.

2. Select a file from the File Load dialog box.

For information on using this dialog box, see *Part 1 Getting Started* in Volume 1 or press **(F1)**.

3. Choose **Load**.

The file appears in the Macro Editor window.

Loading a Macro File into the Current Window

When you load or create a Macro Editor file with the Load command, the currently opened file closes and the new one loads.

NOTE Any changes made to the current file are lost when you load another file with the Load command, so be sure to save your current file before opening another one.

1. Choose **Load** from the File menu.
2. Select a file from the File Load dialog box.
3. Choose **Load**.

Editing a Macro

Use the commands on the Edit and Search menus to make changes to the macro file that appears in the Macro Editor window. These commands are described in the *Notepads* chapter.

Changing the Macro Activation Setting

Before using a macro, you need to activate it by specifying when it will play back. When you save a macro file, its activation setting is also saved, so that you do not have to reactivate a file that was previously activated. However, you can change the activation setting at any time. All macro files defined as active are saved in memory, ready to play back when you press the designated key sequence.

1. Choose **Macro Activation** from the File menu or press **F8**.
2. Select an option in the Macros Active dialog box.

Not Active: Deactivates a macro file so that no macros in the current file will play back.

Active When in Desktop Accessories: Specifies that the macros contained in the current file play back only when you are using a Desktop Accessories application. This option is useful for printer macro files.

NOTE Macros do not play back from within the Macro Editor.

Active When Not in Desktop Accessories: Specifies that the macros contained in the current file play back anywhere you are working, *except* in Desktop Accessories. This option is useful if you have macros defined to play back one way in Desktop Accessories Notepads, for example, and another way in a different word processor.

Active Everywhere: Specifies that macros play back everywhere on your system: in Desktop Accessories applications, in other applications, and at the DOS prompt.

3. Choose **OK**.

Saving a Macro

After you have made changes to the content of your macro or to its activation setting, you must save the macro to retain your changes. You can use the **Save** and **Autosave** commands from the File menu.

Using the Save Command

The **Save** command saves any changes you have made to a macro or its activation setting, but does not exit from the file.

1. Choose **Save** from the File menu.

The Save File to Disk dialog box appears with the name of the current file in its Filename text box.

To save the file with a different name, enter a new name in the text box.

2. Select the desired save options.

Desktop Format: Saves the file along with current window colors and sizes. The default for this option is off.

ASCII: Saves only the file's text. This option provides maximum interchangeability with other word processors, but does not save formatting information. The default for this option is on.

Make Backup File: Renames the existing copy of the file with a .BAK extension before saving the new version. The default for this option is on.

3. Choose **Save**.

The Macro Editor window appears.

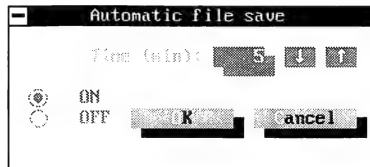
Alternatively, you can save a file and exit the Macro Editor by pressing **Esc** or clicking the close box.

Saving Changes Automatically

The **Autosave** command instructs the Macro Editor to save your file automatically at designated intervals. Use this command to minimize any data loss from power outages.

Autosave is global to the Macro Editor, Outlines, the Appointment Scheduler, and Notepads. When **Autosave** is turned on or off in any of these applications, it is turned on or off in all of them.

1. Choose **Autosave** from the File menu.
2. Type a number representing the number of minutes between each automatic save or click the up and down arrow buttons to increment the number.



Five minutes is the default setting.

3. Select **On**.
4. Choose **OK**.

Saving Setup Options

Normally, the settings you select with the System Control and Controls menus affect only the current file. You can use **Save Setup** to save these settings so they are applied to every new Macro Editor file you open.

- Choose **Save Setup** from the Controls menu.

The settings you have selected in the Controls and System Control menus are saved and the cursor returns to the current file.

Playing Back a Macro

After creating or editing a macro, you should test it to make sure it performs correctly by playing it back and confirming the results. You can test a macro from an application or the DOS prompt, depending on the purpose of the macro.

1. Exit the Macro Editor by pressing **[Esc]** or clicking the close box.
2. Place the cursor where you want to execute the macro.
You may have to exit from Desktop Accessories and enter another application, depending on the macro you have created.
3. Press the keystroke sequence that plays back your macro.
In this example, press **[Ctrl][F4]**. The screen should display "Desktop Accessories."
4. If your macro plays back as you intended, you are finished. If it does not, perform one of the following actions:
 - ▶ Re-enter the Macro Editor, load the macro file, and edit it so that it performs as you want it to.
 - ▶ Re-enter the Macro Editor, load the macro file, choose **Macro Activation** from the File menu, select Not Active, and choose **OK**. This deactivates the macro. You can then delete the file or edit it at your leisure.

Canceling the Macro's Playback

When you test your macro, it may not do what you intended. You can easily cancel the macro while it is playing back and then re-enter the Macro Editor to make changes to the macro.

- ▶ Press **[Esc]** to terminate a macro that is running.

Deleting a Macro

You can delete a macro if you do not like what you have created so far or if playing it back produces unsatisfactory results.

This procedure deletes *all* macros created in the selected file. To delete a single macro in a file, mark and cut the text comprising the macro using the Edit menu commands.

1. Choose **Load** from the File menu.
2. Select the name of the file you want to delete in the File Load dialog box.

3. Choose **Delete**.
4. Choose **OK** when the confirmation dialog box appears.

Deactivating Active Macros

The **Deactivate All Macros** command deactivates all of your active macros. It does not affect macro files stored on disk or displayed in the window; it simply deactivates the active macros that are stored in the special playback memory.

- Choose **Deactivate All Macros** from the Controls menu.

Delaying Playback

You can control how fast a macro plays back in an application with the **Playback Delay** command. For example, you might need to slow the rate at which the contents of a macro are sent to an application if part of the macro is being ignored or if your computer beeps during playback.

1. Choose **Playback Delay** from the Controls menu.
2. Type the number representing the amount of time you want the playback delayed or click the up or down arrow buttons to increment the number.



By default, macros play back as fast as possible on your computer. Playback delay is measured in eighteenths ($1/18$) of a second. This value is referred to as one clock tick. A value of 1 sends a character every $1/18$ second; a value of 2 sends a character every $2/18$ seconds, etc.

3. Select **On**.
4. Choose **OK**.

As the dialog box indicates, the playback delay for the Macro Editor is the same as for the Clipboard, so setting the playback delay for one application sets it for both.

Creating Macros with Learn Mode

Learn Mode provides another way to create macros. Instead of typing in each key manually, **Learn Mode** remembers the keys you press in your applications and saves them for you in a macro. By default, **Learn Mode** is turned off. When you turn **Learn Mode** on, a checkmark appears to the left of the command name on the Controls menu.

Learn mode may not work correctly in all graphics programs.

Desktop Accessories must be running as a memory-resident program to use this feature.

1. Choose **Learn Mode** from the Controls menu to switch it on.
2. Exit from Desktop Accessories and bring up the application you want to create the macros for.
3. Press **[Alt] +** (from the main keyboard, not the numeric keypad).

The cursor shape changes to a block to indicate you are in Learn Mode. (If your particular application already uses a block-shaped cursor, you will not notice a difference.)

4. Press the keystroke sequence for this macro.

As an example, type **[Ctrl] [F]**.

5. Create the macro script by entering the keystrokes and commands you want to record.

In Learn Mode, every keystroke you type becomes a part of the macro. Even editing keystrokes are included in the macro; for example, pressing **[Backspace]** to correct a mistake causes **[Backspace]** to become part of the macro. So be sure to check any recorded macro for errors or extra keystrokes.

6. Press **[Alt] -** (from the main keyboard, not the numeric keypad).

The cursor shape changes back to the blinking line (or whatever cursor shape your application uses) to indicate you are no longer creating macros in Learn Mode.

You can repeat steps 3 - 6 to create additional macros.

7. Use the hotkey to open Desktop Accessories and choose **Learn Mode** again to turn off Learn Mode.

When you create macros in Learn Mode, the macros are saved in memory until you run Desktop Accessories again. When you re-enter Desktop Accessories, the Learn Mode macros are copied into a special LEARN.PRO file that is created automatically for this purpose.

You can have macros for all of your favorite applications. With the Learn Mode macros saved to the special LEARN.PRO file, you can use the Clipboard to copy and paste the macros into separate files for each of your applications, ready to be active whenever you use a particular application.

Using Macros for Specific Operations

You can use macros for a variety of operations. This section provides instructions for using macros to do the following:

- Build printer control macros
- Override an active macro
- Open Desktop Accessories
- Open any Desktop Accessories application
- Open other applications
- Link macros together
- Insert the date and time in a macro
- Add delays or timed pauses
- Create forms entry pauses

In addition, you can also set an alarm in the Appointment Scheduler to run a macro. See the *Appointment Scheduler* chapter for details.

Building Printer Control Macros

NOTE *Printer macros can be used only in Notepads, Outlines, and Database forms.*

Printer control macros are commands inserted into the text of a document that create special formatting features such as boldface, italic, and superscript characters when the document prints. The commands themselves do not appear in the text when you print; they are sent directly to your printer. Therefore, you need special commands for your particular printer, since different printers require different codes.

You can send setup commands to your printer for printing features such as font and type size or printing mode. A macro called SETUP is included in each of the sample printer macro files on the PC Tools disk. Whenever you print a file, Desktop Accessories automatically looks for the SETUP macro in your currently defined printer macros. If found, Desktop Accessories issues the printer commands in the macro to the printer.

Desktop Accessories ships with printer control macros for the Epson FX-80, the IBM Proprinter, the HP Laserjet, and Panasonic printers. These macros may also work with printers that emulate one of these printers. A sample printer control macro appears below:

```
<begdef><ctrlf9>|BOLDON|<esc>E<enddef>
```

When you insert this sample macro into the text, the result is boldface type.

Printer instructions must be entered into a macro in uppercase. For example, |BOLDON| is correct, |Bold On| is not.

Printer control macros cannot be nested.

The following procedures explain how to build macros for printing and use them with a sample Notepads file. You can also use these procedures to build your own printer control macro or change and enhance the supplied macros.

Turning Printer Controls On and Off

This sample macro turns printer control on for boldface printing:

```
<begdef><ctrlf9>|BOLDON|<esc>E<enddef>
```

Use the following procedure to create this macro:

1. Press **Alt** **+** (from the main keyboard, not the numeric keypad) to display

```
<begdef>
```
2. Press the keystroke sequence for this macro.
In the example, pressing **Ctrl** **F9** turns on boldface printing.
3. Press **I**, type the text you want to display in your Notepads file when this macro is used, and press **I** again.
In the example, BOLDON represents the beginning of boldface printing.
4. Type the function of the macro.
In this example, type

```
<esc> E or press F7 Esc E
```

The function is not performed until the text prints. When the text is printed, the string |BOLDON| is replaced with the printer code required for boldface printing. (See your printer manual for printer codes.)

5. Press **Alt** **Q** (from the main keyboard, not the numeric keypad) to end the macro and display

```
<enddef>
```

To turn printer control for boldface printing off, use the following macro:

```
<begdef><ctrlf10>|BOLDOFF|<esc>F<enddef>
```

To create this macro, repeat the steps given above with two exceptions:

- Type

```
|BOLDOFF|
```

instead of

```
|BOLDON|
```

- Type

```
<esc> F
```

instead of

```
<esc> E
```

Putting Printer Setup Commands in a SETUP Macro

You can include any printer setup commands you want in the SETUP macros on your program disk.

- Place the printer commands in the line between `| SETUP|` and `<enddef>` in the SETUP macros on your program disk.

These commands are sent to your printer before any Notepads, Outlines, or Databases files print.

Using Printer Macros in a Document

The Macro Editor lets you create macros that are inserted into a Notepads file to send custom printing features such as boldface and italics to your printer. The following example shows how a printer macro for boldface printing looks in a document and gives instructions for using printer macros.

| BOLDON | SAMPLE NOTES: | BOLDOFF |

1. With your printer macro displayed in the Macro Editor, choose **Macro Activation** from the File menu.

The Macros Active dialog box appears.

2. Select **Active when in Desktop Accessories** and choose **OK**.
3. Save your macro and exit from the Macro Editor.
4. Write your document using Notepads.
5. Insert the macro commands where you want custom printing features.
6. Save the Notepads file.
7. Choose **Print** from the File Menu to print your file.

The document prints with the designated printing features.

Overriding an Active Macro

Keyboard macros override any other key definitions, including the special keys used by Desktop Accessories. For example, if you have an active macro that defines a task for the **F1** key and you want to use the Help feature in Desktop Accessories (which is also defined for **F1**), you need to temporarily disable the **F1** macro key so **F1** performs the normal Desktop Accessories Help function.

There are two ways to tell Macro Editor to ignore the macro definition and use a key's original function. The method you use depends on whether you want to ignore the macro definitions for a few keystrokes or many keystrokes.

Ignoring the Macro Definition for a Single Keystroke

- Press **`** (the back quote character) before the key you want to use. The back quote character is the unshifted **~** (tilde) key on IBM PC keyboards. In the above example, pressing **`** and then **F1** allows you to get help without interference from your predefined **F1** macro.

Ignoring the Macro Definition for Many Keystrokes

To ignore the macro definitions for many keystrokes, it is easiest to turn off macro playback while you are in your application.

1. In the Macro Editor, choose **Macro Activation** from the File menu.
2. Select **Not Active** in the Macros Active dialog box.
3. Select **OK**.
4. Open your application.

Changing Keys and Key Shift States on Your Keyboard

You can change (or override) keys and key shift states on your keyboard. For example, you can redefine the computer keyboard to emulate a typewriter keyboard with macro definitions, as described below.

On the typewriter keyboard, pressing **Shift** **,** types a comma; pressing **Shift** **.** types a period. On the computer keyboard, pressing **Shift** **[** produces a left angle bracket (<); pressing **Shift** **]** produces a right angle bracket (>). You can use the following macro definitions to change the **Shift** **,** and the **Shift** **.** key sequences into commas and periods, thus causing them to emulate the typewriter keys:

```
<begdef> <shift,> , <enddef>
```

```
<begdef> <shift.> . <enddef>
```

Remember that you must use the **`** (back quote) character when you want to ignore a macro defined for a key and use its original function. If you are using the macro definition above to redefine the **Shift** **,** and **Shift** **.** key sequences and you want to use the left and right angle bracket characters in a macro, the following macro shows you how:

```
<begdef><ctrlz> ` <shift,>this text is in brackets`  
<shift.><enddef>
```

Opening Programs and Applications

You can use macros to open programs and applications that you use frequently and want to open quickly.

Desktop Accessories must be running as a memory-resident program before you can load programs and applications with macros.

Opening Desktop Accessories with a Macro

You cannot use the currently defined hotkey in a macro, but you can easily use a macro to open Desktop Accessories.

- ▶ In your macro definition, type

```
<desk>
```

Inserting <desk> in a macro opens Desktop Accessories independently of the current hotkey sequence. The example below shows a macro that opens Desktop Accessories when you press **Ctrl F1**:

```
<begdef><ctrlf1><desk><enddef>
```

Opening another Desktop Accessories Application with a Macro

If you use one of the Desktop Accessories application programs more than others and want to be able to open it quickly, you can create a macro to open it, as in the following example:

```
<begdef><ctrlf2><desk>CA<enddef>
```

In this example, **Ctrl F2** opens the Algebraic Calculator.

Opening Other Applications with a Macro

You can open other programs using a macro just as easily as you can open Desktop Accessories, with one small difference; the program name should not be contained in angular brackets.

For example, to create a macro that runs Central Point Backup automatically, use the following macro:

```
<begdef><ctrlf3>cd\PCTOOLS<enter>CPBACKUP  
<enter><enddef>
```

In this example, the key sequence **Ctrl F3** changes to the PC Tools directory and runs Central Point Backup. Note that "CPBACKUP" is not contained within angular brackets.

Linking Macros Together

You can define a macro to play back other macros, as shown in the example below:

```
<begdef><shiftf1>This tests one macro <enddef>
<begdef><shiftf2>calling two others <enddef>
<begdef><shiftf3><shiftf1><shiftf2><enddef>
```

Pressing **Shift** **F3** to run the macro displays the following text:

This tests one macro calling two others.

This is also known as linking macros. You can link as many individual macros as you want, but you can only nest a maximum of 10 levels. The third macro in the above example is nested one level.

NOTE *Printer control macros cannot be nested.*

Inserting the Date and Time in a Macro

The Macro Editor lets you easily insert the current date and time in your macro definition by using the special key names "date" and "time." You can also define a key to insert the date and time for you, as shown below:

```
<begdef><ctrld><date>, <time><enddef>
```

When you press **Ctrl** **D**, the date and time are taken from the system clock and displayed in this form:

11-08-92, 4:30

Be sure the correct time and date are set when you start your computer.

Adding Delays

Inserting a delay into a macro definition tells Macro Editor to pause during playback for a specified period of time. You can specify time increments from 1/10 of a second to 256 hours.

Delays are useful in a variety of applications. You can use a macro delay in your telecommunications program to dial a database and retrieve information you need at night when the rates are lowest. Delays are often used for creating online demos or help screens. You can define a macro to delay for a specified amount of time after each page of text appears on the screen and then continue to the next page when the time has elapsed.

- Use the following form to add a delay to a macro:

`<cmd>dn`

In the following example, pressing **Ctrl** **F4** causes the message “Done” to display after a four-second delay:

```
<begdef><ctrlf4>wait four seconds. . .  
<cmd>d4Done<enddef>
```

The labels used in the delay command are as follows:

<cmd>: Tells the Macro Editor to interpret the next few entries as commands instead of key definitions. The “cmd” label is not generated by a key sequence; you must type the label yourself.

d: Tells the Macro Editor that the next entry is a delay.

n: indicates the length of the delay. This is typed in the format hh:mm:ss.t (hours, minutes, seconds, and tenths of seconds). Below are some examples of time increment formats:

10:0:0	10-hour delay
9:0	9-minute delay
10	10-second delay
.5	half-second delay

Interrupting a Delay

- Press **Esc** to cut a delay short and play back the rest of the macro.

Creating Forms-Entry (Fill-in-the-Blanks) Macros

You can create forms-entry or fill-in-the blanks macros that have “blanks” which must be filled in with specific information. You can also add a delay to these macros to give you time to fill in the information. For example, you can create a macro that automatically lists a directory and asks you to type in a disk drive.

Two types of forms entry are available:

- fixed length
- variable length

Creating Fixed-Length Fill-in-the-Blanks Macros

When the length of the information you are entering is always the same, you can use fixed-length forms entry. Types of information with a fixed length includes menu selections, disk drives, and dates.

For example, the following macro asks you to fill in the drive letter and then executes the DOS DIR (Directory) command:

1. Press **[Alt] +** (from the main keyboard, not the numeric keypad) to mark the beginning of your macro and display

```
<begdef>
```

2. Press the key(s) you want to press to play back the macro.

For this example, use **[Ctrl] [R]**, which appears as

```
<ctrlr>.
```

3. Type the script of the macro.

For this example, type

```
dir [Spacebar]
```

4. Press **[Ctrl] [I]** to display the fixed field label as shown here.

```
<ffld>
```

5. Press **[#]** and then **[Ctrl] [I]** again.

The # character does not appear when the macro plays back. It simply indicates the fixed length of the field. In this example, the field is one character in length.

You can define any field length by typing the number of characters that fit in the field. And you can use any character to define the field length; the # character is arbitrary. For example, to define a field length of three characters, you could type ### or MMM or 567.

6. Press **[:] [F7] [Enter]**.
7. Press **[Alt] -** (from the main keyboard, not the numeric keypad) to mark the end of the macro and display

```
<enddef>
```

The keystrokes you typed to create this macro were

```
<alt><+><ctrl><r>dir <ctrl><]>#<ctrl>  
<]>:<F7><enter><alt><->
```

The macro appears on the screen as

```
<begdef><ctrlr>dir <ffld>#<ffld>:<enter><enddef>
```

Running the Sample Macro you Created Above

1. Press **Ctrl** **Spacebar** or press **Esc** repeatedly to go back to the DOS prompt.
2. Press **Ctrl** **R**.

The Macro Editor types "dir," leaves a space, and pauses so you can enter a disk drive specifier (such as A, B, or C). After you type in the letter, the macro continues and DOS displays the appropriate directory listing.

Note that you do not have to press **Enter** to see the directory listing. **Enter** is part of the text copied to your program when using fixed-length field macros.

Creating Variable-Length Fill-in-the-Blanks Macros

You can create a macro that allows you to enter information of varying lengths.

For example, the following macro asks you to fill in a file name and then executes the DOS DIR (Directory) command:

1. Press **Alt** **+** (from the main keyboard, not the numeric keypad) to mark the beginning of your macro and display

```
<begdef>
```

2. Press the key(s) you want to press to play back the macro.
For this example, use **Ctrl** **F**.

3. Type the script of the macro.
For this example, type

```
dir Spacebar
```

4. Press **Ctrl** **-** to display the variable field label as shown here.

```
<vfld>
```

5. Press **[.] [.]** and then **[Ctrl] [.]** again.

The two periods are place holders so that you can insert information in the field during macro playback. Any character can be used as a place holder to indicate that information can be entered in the macro.

6. Press **[F7] [Enter]** to display

<enter>

7. Press **[Alt] [-]** (from the main keyboard, not the numeric keypad) to mark the end of the macro and display

<enddef>

The keystrokes you entered to create the macro were:

```
<alt><+><ctrl><f>dir <ctrl><->..<ctrl><->
<F7><enter><alt><->
```

The macro appears on the screen as

```
<begdef><ctrlf>dir <vfld>..<vfld>
<enter><enddef>
```

Running the Macro you Created Above

1. Press **[Esc]** to return to the DOS prompt.
2. Press **[Ctrl] [F]**.

The Macro Editor types "dir", leaves a space, and pauses so you can type in a file name. After you type in the file name, the macro continues.

NOTE You must press the **[Enter]** key to see a directory display when using variable-length field macros. **[Enter]** is not part of the text copied to your program.

Keys Supported by the Macro Editor

Below is a list of all keys used to define macros in the Macro Editor. Use **Ctrl** instead of **Alt** when creating macros to be used inside Desktop Accessories. Using **Alt** may create conflicts since **Alt** is used to pull down menus and choose commands in Desktop Accessories. However, **Alt**-key macros can be used in other programs.

Key	Shifted Key	Alt	Control
A	A	Alt A	Ctrl A
B	B	Alt B	Ctrl B
C	C	Alt C	
D	D	Alt D	Ctrl D
E	E	Alt E	Ctrl E
F	F	Alt F	Ctrl F
G	G	Alt G	Ctrl G
H	H	Alt H	Ctrl H
I	I	Alt I	Ctrl I
J	J	Alt J	Ctrl J
K	K	Alt K	Ctrl K
L	L	Alt L	Ctrl L
M	M	Alt M	Ctrl M
N	N	Alt N	Ctrl N
O	O	Alt O	Ctrl O
P	P	Alt P	Ctrl P
Q	Q	Alt Q	
R	R	Alt R	Ctrl R
S	S	Alt S	
T	T	Alt T	Ctrl T
U	U	Alt U	Ctrl U
V	V	Alt V	Ctrl V
W	W	Alt W	Ctrl W
X	X	Alt X	Ctrl X
Y	Y	Alt Y	Ctrl Y
Z	Z	Alt Z	Ctrl Z
1	!	Alt 1	
2	@	Alt 2	Ctrl 2
3	#	Alt 3	
4	\$	Alt 4	
5	%	Alt 5	

Continued

Key	Shifted Key	Alt	Control
6	^	Alt 6	Ctrl 6
7	&	Alt 7	
8	*	Alt 8	
9	(Alt 9	
0)	Alt 0	
F1	Shift F1	Alt F1	Ctrl F1
F2	Shift F2	Alt F2	Ctrl F2
F3	Shift F3	Alt F3	Ctrl F3
F4	Shift F4	Alt F4	Ctrl F4
F5	Shift F5	Alt F5	Ctrl F5
F6	Shift F6	Alt F6	Ctrl F6
F7	Shift F7	Alt F7	Ctrl F7
F8	Shift F8	Alt F8	Ctrl F8
F9	Shift F9	Alt F9	Ctrl F9
F10	Shift F10	Alt F10	Ctrl F10
-	_	<ENDDEF>	<VFLD>
=	+	<BEGDEF>	
[{		Ctrl [
]	}		<FFLD>
;	:		
'			
\			Ctrl \
,	<		
.	>		
/	?		
Esc			
Tab	SHIFT Tab		
Backspace			Ctrl Backspace
Enter			Ctrl Enter
*			Ctrl Prt Sc
Home			Ctrl Home
↑			
Pg Up			Ctrl Pg Up
→			Ctrl →

Continued

Key	Shifted Key	Alt	Control
KEYPAD			
KEYPAD			
KEYPAD			
KEYPAD			
KEYPAD			
KEYPAD			
KEYPAD			
KEYPAD			
KEYPAD			
KEYPAD			
KEYPAD			
KEYPAD			
KEYPAD			
DATE			
FFLD			
TIME			
VFLD			
DESK			
CMD			
BEGDEF			
ENDDEF			

Clipboard

The copy and paste functions allow you to copy and paste in many of the Desktop Accessories applications, such as Notepads, Outlines, and the Macro Editor. The Clipboard gives these functions even more power.

The Clipboard is a temporary storage area where you place text that you have transferred with the Cut and Copy commands, edit text that you have placed in the Clipboard before pasting it in another location, and print text that you have placed in the Clipboard.

In addition, when Desktop Accessories runs as a memory-resident application, you can use the Clipboard to copy and paste anything that appears on your screen between Desktop Accessories applications and other programs. You can also copy and paste anything that appears on your screen from one program to another. You can even transfer data between DOS applications. You can also copy and paste without opening the Clipboard application by using hotkeys.

The Clipboard expands to accommodate fairly large blocks of text, up to 4K in size, and all window scrolling capabilities are available to edit files on the Clipboard. If you attempt to copy or cut a block of text that is larger than 4K (approximately 80-90 lines of text), the Clipboard displays a warning message, indicating that additional text will be truncated.

NOTE *The Clipboard only copies text and ASCII graphics characters; it does not copy other graphics such as clip art.*

Here's what you'll find in this chapter:

- **Opening the Clipboard** describes the Clipboard window and function keys.
- **Copying and Pasting with the Hotkeys** explains how to copy and paste text in any application or from the screen without opening the Clipboard, as long as Desktop Accessories is resident.
- **Copying and Pasting with Menu Commands** explains how to use the commands on the pull down menus for copying and pasting.
- **Editing Text on the Clipboard** explains how to use the basic Notepads editing commands for cutting and pasting.
- **Printing the Contents of the Clipboard** explains how you can print what's in the Clipboard.
- **Setting the Playback Delay** explains how to control how quickly a paste operation takes place.

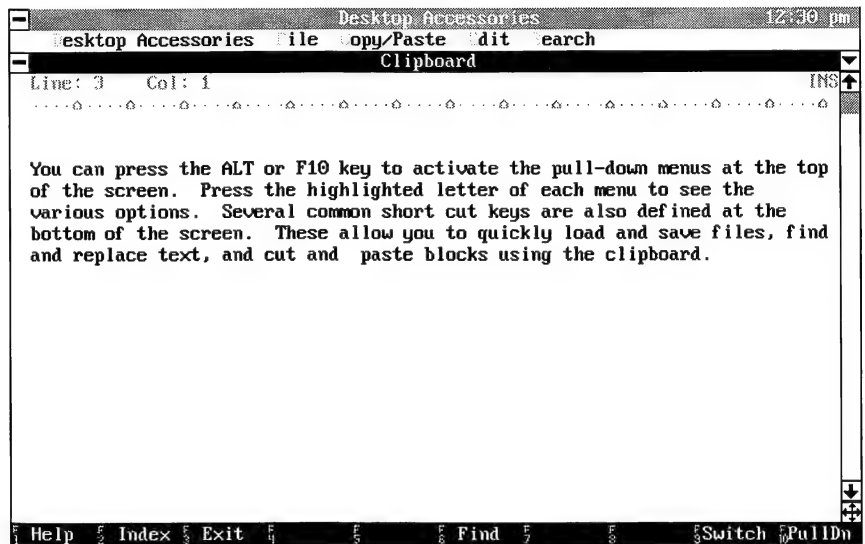
- **Using the Clipboard with Applications Launched from PC Tools Desktop** describes the procedure to copy and paste with the hotkeys in applications launched from PC Tools Desktop.

Opening the Clipboard

- Choose **Clipboard** from the Accessories menu in PC Tools Desktop.

The Clipboard Window


When you choose **Clipboard** from the Accessories menu in PC Tools Desktop, the Clipboard window appears, allowing you to view and edit the contents of the Clipboard.



The elements of the Clipboard window are the same as the Notepads window, however the menu items and function keys are different.

Function Keys

The Clipboard uses the following function key in addition to the standard Desktop Accessories keys described in the *Starting Desktop Accessories* chapter:

Function Key	Description
 F6 Find	Opens the Find and Replace dialog box.

Copying and Pasting with the Hotkeys







When Desktop Accessories is resident, you can copy and paste text in any application or from the screen without opening the Clipboard application. Quick copying and pasting functions are available with the cut and paste hotkeys.

The following procedures use the default hotkeys. You can define different hotkey sequences, using the procedures described in the *Utilities* chapter in this part.

Copying from the Screen to the Clipboard

When you copy text from the screen, text currently contained on the Clipboard is replaced by the new text from the screen. Text copied to the Clipboard from the screen can be pasted into any application.







1. Press   to exit from Desktop Accessories.
2. Press   to copy text to the Clipboard.
A block cursor appears in the center of the screen to select text.
3. Use the arrow keys to position the cursor where you want to start copying text, then press .
4. Press the arrow keys to mark the block of text to be copied.
The block is highlighted.
5. Press .

The selected text is copied to the Clipboard. To edit it, press   to open Desktop Accessories and choose **Clipboard** from the menu.

or



1. Press   to exit from Desktop Accessories.
2. Press   to copy text to the Clipboard.
A block cursor appears in the center of the screen to select text.

3. Place the mouse pointer where you want to start copying text and press the mouse button.
4. Drag the mouse over the block you want to copy and release the mouse button.

The selected text is copied to the Clipboard. To edit it, press **Ctrl** **Spacebar** to open Desktop Accessories and choose **Clipboard** from the menu.

Pasting from the Clipboard to the Screen

Desktop Accessories stores the copied text in the Clipboard until you copy something new over it or until you restart the computer. When something new is copied into the Clipboard, it replaces the contents of the Clipboard. From any window, including a Desktop Accessories window, you can do the following:

1. Place the cursor at the location you want the copied text to be inserted.
2. Press **Ctrl** **Ins**.

The text on the Clipboard is pasted at the insertion point.

Copying and Pasting with Menu Commands

When Desktop Accessories is memory-resident, you can copy to and paste from the application that was on the screen before you opened the Clipboard. For example, you can copy a section of a spreadsheet to the Clipboard and then paste it into a financial report you are working on with your word-processing program.

NOTE To cut and paste to an underlying application using the menus, you must install Desktop Accessories without the /CS option. See the Desktop Accessories Command-Line Options chapter for more information.

Copying Text to the Clipboard

When you copy text from an application on the screen to the Clipboard, the selected text appears in both locations. Most applications require that you first select the information to copy.

From the application you are currently using, perform one of the following procedures:



1. Press **Ctrl** **Spacebar** to open Desktop Accessories.
2. Choose **Clipboard** from the Accessories menu in PC Tools Desktop.

3. Choose **Copy to Clipboard** from the Copy/Paste menu.
The Clipboard window disappears, leaving you in your previous screen to select text from the screen.
4. Use the arrow keys to position the cursor where you want to start copying text, then press **Enter**.
The cursor changes to a large block cursor.
5. Press the arrow keys to mark the block of text to be copied.
The block is highlighted.
6. Press **Enter** to copy the selected text to the Clipboard.
The selected text is copied to the Clipboard, and the Clipboard automatically opens for you to edit its contents.
7. When editing is complete, close the Clipboard.

or



1. Press **Ctrl** **Spacebar** to open Desktop Accessories.
2. Choose **Clipboard** from the Accessories menu in PC Tools Desktop.
3. Choose **Copy to Clipboard** from the Copy/Paste menu.
The Clipboard window disappears, leaving you in your previous screen to select text from the screen.
4. Place the mouse pointer where you want to start copying text.
5. Drag the mouse over the block of text you want to copy.
The highlighted block is copied to the Clipboard, and the Clipboard automatically opens for you to edit its contents.
6. When editing is complete, close the Clipboard.

NOTE Usually, the formatting for your text is not stored on the Clipboard, but this varies from application to application.

Pasting Text from the Clipboard

Pasting allows you to insert the contents of the Clipboard into the application underneath the Clipboard window. The contents of the Clipboard are pasted at the cursor position. If you do not have an application open, the contents of the Clipboard are copied to DOS.

1. Press **Ctrl** **Spacebar** to open Desktop Accessories.
2. Choose **Clipboard** from the Accessories menu in PC Tools Desktop.

3. Choose **Paste from Clipboard** from the Copy/Paste menu.

The Clipboard window disappears, and the Clipboard text is placed in the underlying application (or screen) at the cursor position.

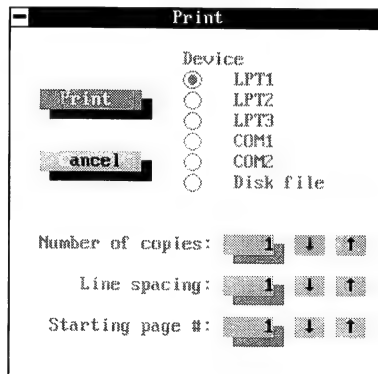
You can paste the copied text from the Clipboard as many times as you wish. Text placed in the Clipboard remains there until you replace it with other text or restart the computer.

Editing Text on the Clipboard

When copied text is stored on the Clipboard, you can use the keyboard or the mouse to edit the text before you paste it into another location. The basic editing operations are described in the *Notepads* chapter in this part. That chapter also describes how to work with large blocks of text, delete text, insert a file, move to a specific line, and search and replace text.

Printing the Contents of the Clipboard

1. Choose **Print** from the File menu.
2. Select one of the Device options in the Print dialog box.



LPT (1, 2, or 3): Selects a parallel printer port. Printer port number 1 is the default.

COM (1 or 2): Selects a serial printer port.

Disk File: Formats and saves the text for printing and writes the file to disk (in the Desktop Accessories directory) for printing at a later date. The print file that is created is named CLIPBOAR.PRT.

3. Specify the number of copies, line spacing, and starting page number.

4. Choose **Print** to start printing.

If the tab ruler is on, a message appears while the file prints.

Setting the Playback Delay

You can control how quickly a paste takes place. For example, if you attempt to paste from the Clipboard to an application and some of the characters are ignored or your computer beeps, the contents of the Clipboard are being sent to the application too quickly for it to process. Slowing down the paste prevents these problems from occurring.

1. Choose **Clipboard** from the Accessories menu in PC Tools Desktop.
2. Choose **Set Playback Delay** from the Copy/Paste menu.
3. Type the number representing the amount of time you want the paste delayed.



By default, text is pasted as fast as possible on your computer. Playback delay is measured in eighteenths ($1/18$) of a second. This value is referred to as one clock tick. A value of 1 sends a character every $1/18$ second; a value of 2 sends a character every $2/18$ seconds, and so on.

4. Select **ON**.
5. Choose **OK**.

As the dialog box indicates, the playback delay for the Clipboard is the same as for the Macro Editor, so setting the playback delay for one application sets it for both.

Using the Clipboard with Applications Launched from PC Tools Desktop

1. Install and run Desktop Accessories memory-resident.

If you did not choose to install Desktop Accessories memory-resident during installation, see the *Starting Desktop Accessories* chapter for information on launching Desktop Accessories memory-resident.

NOTE Do not use the /CS option to run Desktop Accessories. For complete information on Desktop Accessories command-line options, see the Desktop Accessories Command-Line Options chapter.

2. Run PC Tools Desktop as a standard application after Desktop Accessories.

From DOS, type

PCTOOLS

3. Launch your favorite applications from the Menu window, then use the Clipboard hotkeys to cut and paste.

NOTE If PC Tools Desktop has been installed resident before Desktop Accessories, you can also run PC Tools Desktop non-resident after Desktop Accessories.

Algebraic Calculator

The Algebraic Calculator operates like a standard printing calculator. You can perform simple arithmetic calculations by pressing the keys on the numeric keypad on the right of your keyboard. (You may need to press **Num Lock** to use these keys.) You can also press the numeric keys along the top of your keyboard or click the “keys” on the screen.

As you enter numbers and perform operations, the numbers appear first in the calculator display and then on the “tape.”

When you run Desktop Accessories memory-resident, you have access to the Algebraic Calculator from any program.

Here’s what you’ll find in this chapter:

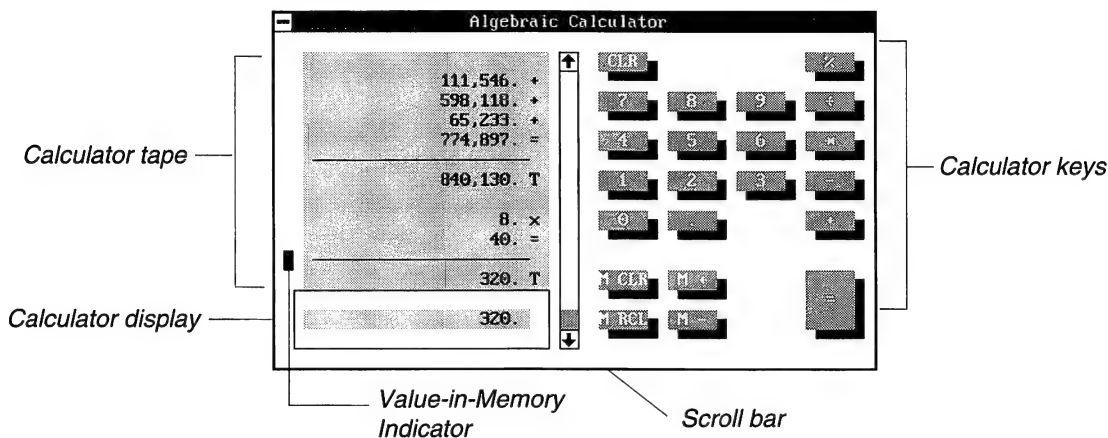
- **Starting the Algebraic Calculator** describes the Algebraic Calculator window and function keys.
- **Performing Calculations** describes the basic operations you can perform with the Algebraic Calculator.
- **Editing the Tape and Recalculating** explains how to edit any number you have entered from the keyboard and recalculate the result.
- **Clearing the Calculator Display** explains how to clear a number you mistakenly entered.
- **Erasing the Calculator Tape** explains how to erase all numbers and start over.
- **Copying to the Clipboard** explains how to copy the contents of the calculator to the Clipboard.
- **Printing the Tape** explains how to print a copy of your calculations.

Starting the Algebraic Calculator

- Choose **Calculators ► Algebraic** from the Accessories menu in PC Tools Desktop.

The Algebraic Calculator Window

The Algebraic Calculator looks much the same as the standard calculator you may have in your desk drawer.



In addition to the standard PC Tools window components, the Algebraic Calculator window contains the following elements:

Calculator Tape: Displays up to 12 lines of calculations. You can scroll the tape with the keys or the mouse to display numbers. The calculator tape can display about 1000 lines. When the tape is full and new lines are added, the lines at the top of the tape are lost.

Calculator Display: Displays numbers as you enter them; numbers on the tape can also be "scrolled" into the display area to be edited.

Calculator Keys: Works with the mouse to perform computations.

Scroll Bar: Works with the mouse to move, or "scroll," through the numbers that appear on the tape.

Value-Saved-in-Memory Indicator: Displays an M when a value is saved in memory.

NOTE If the keys on your numeric keypad don't produce numbers when you press them, try pressing Num Lock.

Function Keys

The Algebraic Calculator uses the following function keys in addition to the standard Desktop Accessories keys described in the *Starting Desktop Accessories* chapter:

Function Key	Description
F4 Clear	Clears the calculator display.
F5 Erase	Erases all information on the calculator tape.

Changing the Size of the Calculator Display

The Algebraic Calculator can be displayed in its full size, with the tape display and the keypad, or a smaller size, showing only the tape display area. All calculator functions are available with either size.

- Choose **Wide Display** from the Options menu to toggle between the two sizes.

Performing Calculations

The Algebraic Calculator operates like a printing calculator.

- Enter a number, an operation, another number, and [=] or [Enter]; for example, [8] [+] [2] [5] [=].

The tape shows up to 12 lines at a time, but you can calculate as many numbers as you want.

These are the basic operations and the keys that perform them:

To	Keyboard	Mouse
Add	[+]	+
Subtract	[-]	-
Multiply	[*] or [X]	*
Divide	[/]	/
Total or equal	[Enter] or [=]	=
Clear	[C]	CLR
Calculate percentages	[%]	%
Add or subtract a number from memory	[M] then [+] or [-]	M+ or M-

Continued

To	Keyboard	Mouse
Recall a number from memory	[M] then [R]	M RCL
Erase a number from memory	[M] then [C]	M CLR
Set the number of decimal places	[D] then the number	
Toggle the comma display	[,]	,

Automatic Constant

The automatic constant feature saves the last number entered before an arithmetic operator (such as + or *) in temporary memory so it can be applied in calculations. The automatic constant activates only after pressing two or more arithmetic operator keys in a row, or after pressing a function key and **[=]**.

The following example illustrates the automatic constant feature:

Keys Entered	Constant	What the Calculator Does
123 [+] 100 [=]	100	$123 + 100 - 100 = 123$
5 [+] 9 [+] [+] [+] [=]	9	$5 + 9 + 9 + 9 + 9 = 41$
9 [-] [-] [-] [=]	9	$9 - 9 - 9 - 9 = -18$

Remember that structuring a calculation using the format described above yields a subtotal and clears the automatic constant so that it does not affect your calculation.

Sample Calculations

The following two examples illustrate how to perform calculations:

Problem: Solve $5 + 7$.

► Press **[5]** **[+]** **[7]** then **[Enter]** or **[=]**.

The calculation is performed and the result appears in the display and on the tape above the display. The operators (such as +, -, =) are saved to remind you what operation you performed and to show you the total (T).

Problem: Determine the total amount of a sale if the purchase amount is \$29.00 and the sales tax rate is 6%.

- Press **29+6%**.

The Algebraic Calculator adds 6 percent of 29 to 29 and returns an answer of \$30.74. You don't need to press **=** because **%** carries out the calculation.

Editing the Tape and Recalculating

As you type, the calculations appear on the tape. You can edit any number you have entered from the keyboard and recalculate the result, but calculated results are not editable.

1. Move the number you want to change into the calculator display.
2. Type the new number.

The new number overwrites the old number in the display, and the numbers are recalculated immediately after the number in the display is changed.

Clearing the Calculator Display

If you make a mistake and want to retype the number appearing in the display, you can erase the display.

- Choose **Clear Display** from the Options menu.

Erasing the Calculator Tape

When you finish your calculations or want to start over, you can erase all the numbers from the tape.

- Choose **Erase Tape** from the Options menu.

Copying to the Clipboard

You may want to use your calculations in a document. For example, you might want to prepare a sales report in Notepads, use your calculations in the text, and then print the report. You can insert the results of your calculations into any application using the Clipboard.

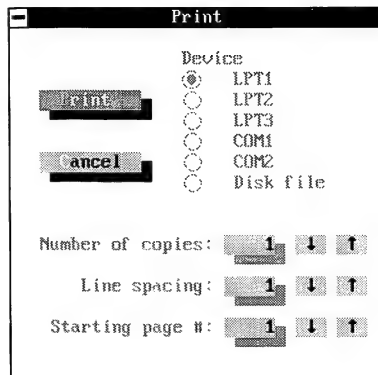
- Choose **Copy to Clipboard** from the Options menu.

Only about the last 160 lines (4000 characters) of the tape are copied. You can then open the Clipboard to edit the copied calculations.

Printing the Tape

If you want a copy of your calculations, you can print the calculator tape or save it to a disk file.

1. Choose **Print Tape** from the Options menu.
2. Select one of the Device options.



LPT (1, 2, or 3): Selects a parallel printer port (default is 1).

COM (1, 2): Selects a serial printer port.

Disk File: Formats and saves the text for printing and writes the file to disk (in the directory the file was loaded from) for printing at a later date. The print file that is created is named CALC.PRT.

3. Specify the number of copies, line spacing, and starting page number.
4. Choose **Print**.

The message "Now Printing. Press Escape to Cancel." appears on the calculator tape while you are printing.

Financial Calculator

When Desktop Accessories is memory-resident, you have access to the Financial Calculator from any program. The Financial Calculator emulates the financial functions of the HP-12C calculator manufactured by Hewlett-Packard.

You can use the Financial Calculator to calculate simple interest, compound interest, and annual percentage rates.

This section explains how the functions of the HP-12C calculator are emulated in Desktop Accessories. If you are familiar with using the HP-12C, you will find that performing the same functions with the Desktop Accessories version is easy. If you do not know how to use an HP-12C calculator, this section is designed to familiarize you with its functions.

Central Point Software, Inc. does not guarantee that the keystroke sequences and results given are suitable for your purposes. You are responsible for decisions you make when using the Financial Calculator.

This chapter is not intended as a comprehensive tutorial of the HP-12C calculator. If you want a more complete explanation of how to use the HP-12C, manuals are available at most bookstores. We have listed two at the end of this chapter.

NOTE *When calculating with calendar dates, the Financial Calculator uses the DOS date function. The earliest valid date in DOS is 1/1/80, therefore the Financial Calculator will not calculate earlier dates.*

Here's what you'll find in this chapter:

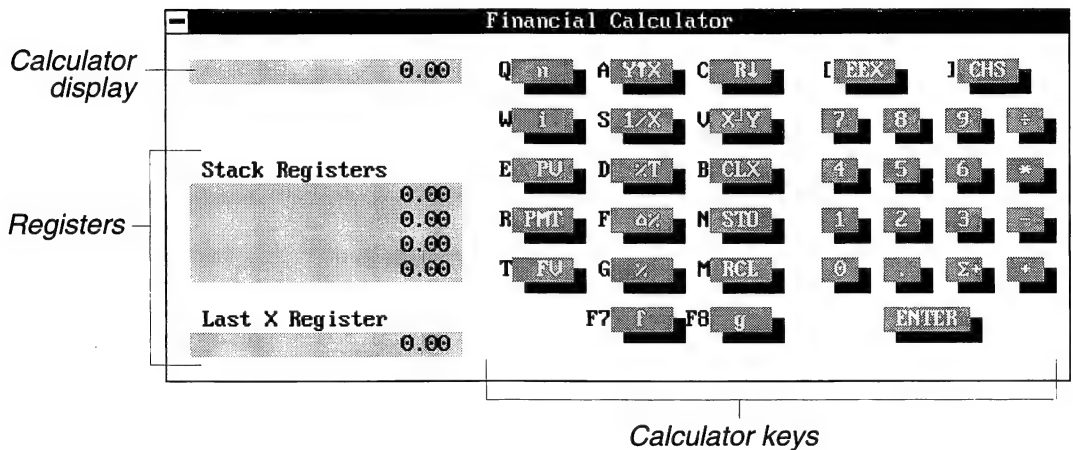
- **Starting the Financial Calculator** explains the Financial Calculator window and function keys.
- **Understanding the Display** explains how to use the keys on the Financial Calculator display.
- **Understanding the Registers** explains the three kinds of registers that store different kinds of numeric information.
- **Performing Arithmetic Operations** explains how to perform simple arithmetic operations.

Starting the Financial Calculator

- Choose **Calculators** ► **Financial** from the Accessories menu in PC Tools Desktop.

The Financial Calculator Window

If you have an HP-12C calculator, you can recognize the similarity between it and the Financial Calculator provided in Desktop Accessories.



The parts of the Financial Calculator window are:

Calculator Display: Where numbers appear as you enter them.

Registers: Where numeric information is stored. There are three types of registers: stack, financial, and data. You can choose to display a specific set of registers or no registers at all. The example above shows stack registers. See the section "Understanding the Registers" later in this chapter for more information.

Calculator Keys: Used with the mouse to perform computations. The letters and symbols displayed next to the keys indicate what to press on the keyboard to invoke the key function. See the following section "Understanding the Display" for complete information on using the calculator keys.

Function Keys

The Financial Calculator uses the following function keys in addition to the standard Desktop Accessories keys described in the *Starting Desktop Accessories* chapter:

Function Key	Description
F4 None	Removes all registers from the display.
F5 Stack	Displays the stack registers.
F6 Fin	Displays the financial registers.

Understanding the Display

You must use several of the keyboard keys and the number keys with the Financial Calculator. Most of the keys on the Financial Calculator have more than one function. Each key is labeled with the function it performs, which changes according to the calculator mode. The letters to the left of the keys on the screen indicate the function's keyboard equivalent.

This section explains how to do the following:

- Use the keyboard.
- Use the f and g keys.
- Set the number of decimal places.
- Turn "c" on or off in the display.
- Turn "d.my" on or off in the display.
- Turn "beg" on or off in the display.

Using the Keyboard

This chapter refers to the keys by their functional names; the actual keys with their corresponding financial functions appear in the following table:

Press	To Perform Function
q	n (number of periods)
w	i (interest rate)
e	PV (present value)
r	PMT (payment)
t	FV (future value)

Continued

Press	To Perform Function
a	Y^X (power)
s	$1/X$ (reciprocal or inverse)
d	%T (percent of total)
f	$\Delta\%$ (percent difference)
g	% (percent)
c	R \Downarrow (roll down)
v	$X \leftrightarrow Y$ (exchange X and Y registers)
b	CLX (clear register X)
†	f
F8	g
n	STO (store number)
m	RCL (recall stored number)
]	CHS (change sign)
[EEX (exponent)
‰	Enter
&x	$\Sigma+$ (sum of—used in statistics)
0 - 9	0 - 9
+	+
-	-
/	\div
*	x (multiply)

Using the F and G Keys

The f and g keys in the lower-left portion of the calculator display let you perform additional functions.

NOTE Select and release the f or g key before selecting the next key.

- ▶ Press **F7** or click the f key on the screen to enter f-key mode.
The functions available in f-key mode appear on the keys.
- ▶ Press **F8** or click the g key on your screen to enter g-key mode.
The functions available in g-key mode appear on the keys.

- ▶ Press **Enter** or click the ENTER key on your screen to return to normal mode.

The functions available in normal mode appear on the keys.

Setting the Number of Decimal Places

The Financial Calculator uses 12 digits of precision for calculations, no matter how many places you want to display. You can set up to nine decimal places.

- ▶ Select the **f** key and then the number of decimal places.
For example, to set the display to four decimal places, select **f** and then **4**.
To use scientific notation, select **f** and press **.**

Turning “C” On or Off in the Display

The “c” in the display signifies continuous compounding during financial calculations involving partial periods.

- ▶ Select **STO EEX** to turn on or off the “c” in the display.

Turning “D.MY” On or Off in the Display

When you see “d.my” in the display, any calendar date you key in must be in Day.MonthYear format. When this symbol does not appear in the display, all dates must be in Month.DayYear format.

- ▶ Select **g** and then the **DMY** key to turn D.MY on.
- ▶ Select **g** and then the **MDY** key to turn D.MY off.

Turning “Beg” On or Off in the Display

When you see “beg” in the display, any loan or annuity calculation is performed assuming each payment is made at the beginning of the payment period. When you do not see “beg” displayed, the payment is assumed to be due at the end of the payment period.

- ▶ Select **g** and then the **BEG** key to display “beg.”
- ▶ Select **g** and then the **END** key to turn “beg” off.

Understanding the Registers

The Financial Calculator contains three kinds of registers that store different kinds of numeric information. The registers continue to store numbers until the computer is turned off, you exit from the calculator application, or you clear the registers.

To view the contents of a register, choose the register you want to see from the Register Display menu or press the corresponding function key. The register you choose appears in the Financial Calculator window.

No Registers

You can choose not to display a register by choosing **No Registers Displayed** from the Register Display menu.

The Stack Registers

These perform ordinary arithmetic (addition, subtraction, multiplication, division) and are connected in a way that allows you to do lengthy calculations easily by stacking the intermediate results until you need them.

The Financial Registers

These calculate financial quantities such as mortgage payments. The calculator uses four of the numbers to calculate the fifth.

The Data Registers

These are named with numbers from 0 to 9 and from .0 to .9. Use these names when storing numbers in the registers.

Performing Arithmetic Operations

The Financial Calculator can be used to perform simple and complex calculations. However, performing simple arithmetic calculations is done differently with the Financial Calculator than with the Algebraic Calculator.

This section explains how to use the Financial Calculator to perform the following tasks:

- Add, subtract, multiply, and divide
- Calculate percentages

- Change the sign
- Store and recall numbers

Performing arithmetic operations involves combining two or more numbers. The Financial Calculator operates by using Reverse Polish Notation, which uses the following formula:

1. Enter the first number and press **[Enter]**.
For example, press **[3]** and then press **[Enter]**.
2. Enter the second number, then press the operation key (such as **[+]** or **[-]**).
For example, press **[8]** and then press **[+]**.

When you perform multiple calculations, each intermediate result becomes the first number of your next calculation. You do not need to enter in that number or press **[Enter]**; just type in the second number and press the operation key. For example, to solve this equation:

$$(6 + 12 + 3 - 9) * 3$$

Type the following in the order listed:

[6] **[Enter]** **[1]****[2]** **[+]** **[3]** **[+]** **[9]** **[-]** **[3]** **[*]**

Your result is 36.

Use this formula to perform simple arithmetic functions such as addition, subtraction, multiplication, division, and calculating percentages.

Changing the Sign of a Number

- Select CHS after entering the number, then press the operation key or enter the next number in your calculation.

The **[+/-]** key is used for subtraction, not to change a sign.

Storing and Recalling Numbers

Use STO and RCL to save and recall numbers stored in the registers. You also need to use the name of a data register (0 through 9 or .0 through .9) or a financial register (n, i, PV, PMT, or FV) when using these keys.

Storing a Number

Compute $(1.2 \times 45) / (-33)$ and store the result in register 0 and in the PV register.

1. Type **1.2** and press **Enter**.
2. Type **45** and press *****.
3. Type **33** and select CHS (press **J**).
4. Press **/** and select STO (press **N**).
5. Type **0** (zero) and select PV (press **E**).

The number -1.6364 is displayed in the window in the upper-right corner. (The number of decimal places displayed varies according to the setting you selected.)

When storing a number into one of the five financial registers, press the name of the register you want; you don't need to select STO first.

Recalling a Number

Compute $6 \times ((1.2 \times 45) / (-33))$ by recalling the result of the previous problem.

1. Select RCL (press **M**) and then select PV (press **E**).
2. Type **6** and press *****.

or

1. Select RCL (press **M**) and type **0**.
2. Type **6** and *****.

Unlike STO, when you want to recall to the X register a copy of the contents of one of the five financial registers, you must select RCL, just as with the numbered data registers).

Acknowledgement

This chapter was excerpted and summarized from a booklet entitled *The HP-12C Pocket Guide: Just in Case* (\$4.95), published by Grapevine Publications and used with their permission.

Grapevine also publishes another book on how to use the HP-12C calculator entitled *An Easy Course In Using the HP-12C* (\$19.95). The Easy Course includes instructions for programming the HP-12C, which is not possible with the Desktop Accessories Financial Calculator.

Grapevine Publications is not affiliated with Central Point Software, Inc. and Central Point Software, Inc. does not endorse these books or guarantee their accuracy.

You can order these books directly from Grapevine Publications at the following address:

Grapevine Publications, Inc.
P.O. Box 118
Corvallis, OR 97339-0118

Scientific Calculator

The Scientific Calculator emulates many of the functions of the HP-11C calculator manufactured by Hewlett-Packard, but it does not include programming capability. If you are familiar with the HP-11C, you will find that performing the same functions with the Desktop Accessories version is easy. If you do not know how to use the HP-11C, this chapter gets you started.

This section is not intended as a comprehensive demonstration of the HP-11C calculator. If you want a more complete explanation of how to use the HP-11C, there are manuals available at most bookstores.

Central Point Software, Inc. does not guarantee that the keystroke sequences given are correct or suitable for your purposes. You are responsible for decisions you make with the Scientific Calculator.

With the Scientific Calculator, you can perform a variety of scientific calculations, including logarithmic functions and trigonometric functions.

Here's what you'll find in this chapter:

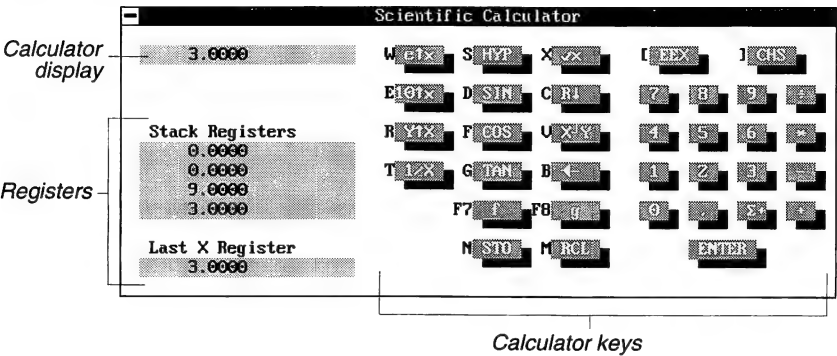
- **Starting the Scientific Calculator** describes the Scientific Calculator window and function keys.
- **One-Number Operations** explains how to perform one-number operations.
- **Multi-Number Operations** explains how to perform multi-number operations.
- **Understanding the Registers** describes the registers, which are used to store numbers for later calculations.
- **Performing Calculator Functions** explains how to perform a variety of scientific calculations, including logarithmic functions and trigonometric functions.
- **Scientific Calculator Display Errors** describes the errors you might receive.

Starting the Scientific Calculator

- Choose **Calculators ► Scientific** from the Accessories menu in PC Tools Desktop.

The Scientific Calculator Window

If you have an HP-11C calculator, you recognize the similarity between it and the Scientific Calculator provided in Desktop Accessories.



The parts of the Scientific Calculator window are:

Calculator Display: Where numbers appear as you enter them.

Registers: Where numeric information is stored. There are two types of registers: stack and data. You can choose to display a specific set of registers or no registers at all. The example above shows stack registers. See the section “Understanding the Registers” for more information.

Calculator Keys: Works with the mouse to perform computations. Most keys on the Scientific Calculator perform more than one function. Each key is labeled with the function it performs, which changes according to the calculator mode. The letters to the left of the keys on the screen indicate the function’s keyboard equivalent.

Function Keys

The Financial Calculator uses the following function keys in addition to the standard Desktop Accessories keys described in the *Starting Desktop Accessories* chapter:

Function Key	Description
F4 None	Displays no registers.
F5 Stack	Displays the stack register window.
F6 Data	Displays the data register window.

One-Number Operations

A one-number operation is any numerical operation that uses just one number.

1. Enter the number if it is not already in the display.
2. Select the operator key.

Multi-Number Operations

The Scientific Calculator performs multi-number operations by using Reverse Polish Notation.

1. Enter two numbers in the calculator.

If the first number of the two-number operation is already in the calculator (as the result of a previous operation), simply type the second number—do not press **Enter**. If you have to type two numbers before performing an operation, use **Enter** to separate the two numbers.

2. Enter an operation.

The +, -, *, and ÷ are examples of two-number operations.

As you enter numbers, they go into memory into what is called a stack — the last number entered becomes the bottom entry of the stack. When the operation is performed (by pressing the function key), the operator acts upon one or more of the bottom entries in their order of entry and puts the result on the stack for the next calculation.

Order of Entry

Reversing the order of the numbers in addition and multiplication does not have any effect on your answer, but the number you are subtracting or dividing by must always be the *second* number entered.

For two-number operations (such as y^x), the Scientific Calculator uses the values in the displayed X register and the Y register to calculate results. The number designated by x is the last number to be entered. Enter the y value first, press **Enter** to lift the value into the Y register, key in the X register value, then execute the operation. For example, to calculate the value of 2 raised to the power of four (2^4), type 2, press **Enter**, type the exponent, 4, then select y^x .

Understanding the Registers

The Scientific Calculator uses different types of registers to manipulate and store the results of calculations. To view the contents of any register, choose the register you want to see from the Register Display menu.

Stack Registers

The memory stack registers, along with **Enter**, store and recall intermediate results for your calculations.

When using the Scientific Calculator, the number in the display is the same number in the X register. Typing in a number or executing an operation causes the numbers already in the stack to move up one register, remain in the same register, or drop, depending on the type of operation you are performing. Numbers in the stack are available on a last in, first out basis.

$R\downarrow$ and $R\uparrow$ roll the contents of the stack registers down or up one register. No values are lost. $X\leftrightarrow Y$ exchanges the numbers in the X and Y registers.

LAST X Register: LSTX

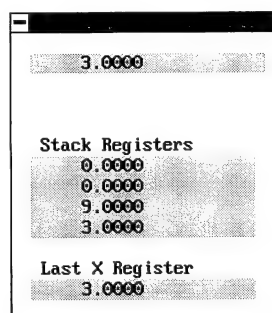
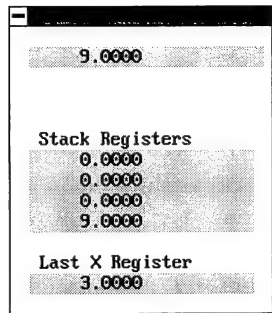
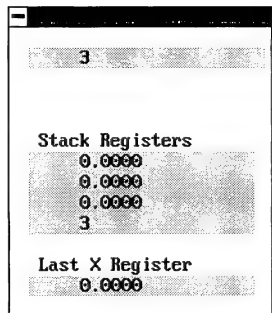
When an operation performs, a copy of the number in the X register before the operation was performed is also stored in the LAST X register. Selecting **g ENTER** places a copy of the contents of the LAST X register into the X register. This feature saves you from having to re-enter numbers you want to use again and can assist you in error recovery. The following illustration demonstrates how the LAST X register works with the operation 3^2 :

Keys

3

$g x^\circ$

g Enter



Data Registers

Storing and recalling numbers involve the displayed X register and the data storage registers.

Storing and Recalling Numbers: STO and RCL

Using the Scientific Calculator, numbers can be stored in memory for later use with the STO (store) and RCL (recall) keys. The STO key copies the number in the displayed X register and places it in the specified storage place holder. Select the STO key and then press a numeric key (or click it with the mouse) to place the number from the display into the specified place holder. You can place up to 20 numbers in memory by entering them in the 0 to 9 and .0 to .9 place holders. You can view the storage registers to see which place holder the stored number is in by choosing D from the Register Display menu or pressing **[F6]**. Selecting the RCL key and then pressing the specified place holder numeral brings back the stored value to use even when other calculations have been performed in the interim.

The STO, RCL, +, -, *, and ÷ functions use the number in the X register to perform arithmetic on the contents of a specified storage register *n*. The key sequence is STO, followed by an arithmetic function key, followed in turn by the register address (0 through 9 and .0 through .9). The result of any storage register operation is placed in the specified data storage register.

Mouse	Keyboard	Display	What it Does
6 STO 1	6 [N] 1	6.0000	Stores 6 in R1.
2 STO ÷ 1	2 [N] [÷] 1	2.0000	Divides number in R1 (6) by 2.
RCL 1	[M] 1	3.0000	Recalls copy of new number in R1.
4 STO * 1	4 [N] [*] 1	4.0000	Multiplies number in R1 (6) by 4.

Clearing the Registers

Instructions for clearing the registers are provided in the “Performing Calculator Functions” section under “Basic Functions.” Instructions for clearing statistical registers are given under “Statistics.”

Performing Calculator Functions

The Scientific Calculator has three modes for displaying digits: fixed (FIX); scientific (SCI); and engineering (ENG). These modes use a variable, 0 through 9, to specify the display setting. These modes are described in the following table under “Display Mode.”

Mouse	Keyboard	Function
Basic Functions		
R↓	C	Roll stack down: rolls down the contents of the stack.
g R↑	F8 C	Roll stack up: rolls up the contents of the stack.
X↔Y	V	Exchange X and Y: exchanges the contents of the X and Y stack registers.
ENTER	Enter	Copy X to Y: enters a copy of a number in the displayed X register into the Y register. Also used to separate multiple number entries.
<—	B	<p>Clear display: deletes numbers from the displayed X register in one of the following ways:</p> <p>If you select <— after a function, all digits in the display are cleared to zero, or</p> <p>After you have typed a new number, if you select <— before performing a function, the last digit you keyed in is deleted. Deleting one or more digits then lets you key in new digits to replace them.</p>
g ENTER	F8 Enter	Recall previous number: recalls the number displayed before the previous function back into the displayed X register.
g CLX	F8 B	Clear X to 0: clears the contents of the displayed X register to zero.
f Σ	F7 X	Clear stack registers: clears the contents of the statistics registers (R0-R5) and the stack registers, but not the LAST X register. The keyboard equivalent is F7 X .
f REG	F7 V	Clear data registers: clears the contents of all storage registers to zero. Also clears the statistics registers (R0 - R5). To clear a single storage register, store zero in that register. The keyboard equivalent is F7 V .
f PREFIX	F7 B	Cancel prefix: cancels the f or g prefix for a function, and also cancels the following partially entered functions: STO, RCL, HYP, and AHYP.

Continued

Mouse	Keyboard	Function
STO	[N]	Store: stores a number in each of the 20 placeholders 0 to 9 and .0 to .9.
RCL	[M]	Recall stored number: recalls value(s) stored in the storage registers. Select this key and follow it with the register number.
Display Mode		
f	[F7]	f-key mode: puts the calculator in f-key mode. The functions labeled on the "keys" change to indicate their function in f-key mode and the "f" annunciator appears in the display.
g	[F8]	g-key mode: puts the calculator in g-key mode. The functions labeled on the "keys" change to indicate their function in g-key mode and the "g" annunciator appears in the display.
f FIX	[F7] keypad [7]	Fixed mode: sets the number of decimal places in the display. The default is set to 4 places, but each number is represented internally as a 10-digit mantissa and a 2-digit exponent of 10. To set the number of places after the decimal point, select the f key, then the FIX key, then a numeral key. For example, selecting f FIX 2 displays the number 456,789 as 456,789.00. The designation of decimal places is retained even when the computer is turned off. All examples in this manual assume f FIX 4.
f SCI	[F7] keypad [8]	Scientific mode: displays a number in scientific notation. To select or change scientific mode, select f SCI, then a numeral specifying the number of decimal places you want the display rounded to, from 0 to 6. For example, selecting f SCI 4 displays 456,789 as 4.5679 05.

Continued

Mouse	Keyboard	Function
f ENG	[F7] keypad [9]	<p>Engineering mode: displays numbers in engineering notation format. The number following f ENG specifies the number of digits to display after the first significant digit.</p> <p>Engineering notation is similar to scientific notation with the following exceptions:</p> <ol style="list-style-type: none"> 1. Exponents are displayed in multiples of three. Thus, any display can be easily read in units of K (kilo-10^3) or m (milli-10^{-3}) that are frequently used in the engineering field. 2. The next digit after the specified number of decimal places is rounded off automatically.
EEX	[I]	<p>Enter exponent: indicates that the next digits keyed in are exponents of 10. First type the mantissa, then select EEX, then type the exponent.</p>
Changing Numbers		
g ABS	[F8] [I]	Absolute value: changes the number in the display to the absolute value of the number.
g RND	[F8] [V]	Round number: rounds the calculator's internal 10-digit mantissa of the value in the display to the number of digits selected with the FIX, SCI, or ENG setting.
CHS	[I]	Change sign: changes the sign of the number or the exponent of 10 in the display. Positive is the default; if the number is changed to negative, a minus (-) appears in the display.
g INT	[F8] [N]	Integer: extracts the digits before the decimal point from the number in the display and places them in the display.
f FRAC	[F7] [N]	Fractional part: extracts the digits after the decimal point from the number in the display and places them in the display.
One-Number Operations		
f Pi	[F7] [I]	Pi: places the value of pi (3.141592654) in the display (assuming you have set the f FIX setting to 9).
1/x	[T]	Reciprocal or inverse: computes the reciprocal of the number in the display.

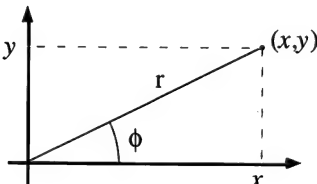
Continued

Mouse	Keyboard	Function
\sqrt{X}	X	Square root: calculates the square root of the number in the display.
$g \ X^{\circ}$	F8 X	Square: calculates the square of the number in the display.
$f \ x!$	F7 keypad 0	Factorial: calculates the factorial of the number in the display when you select $f \ x!$. To calculate the Gamma function of a number, subtract 1 from the number. Then, with the result in the X register, select $x!$.
$f \ x!$	F7 keypad 0	Gamma: calculates the Gamma function Γ of the number in the display. To calculate the Gamma function of a number, subtract 1 from the number. Then, with the result in the X register, select $x!$.
Logarithmic Functions		
$g \ LOG$	F8 E	Common logarithm: computes the common logarithm (base 10) of the number in the display. The number must be positive.
$10^{\uparrow}x$	E	Common antilogarithm: calculates the common antilogarithm of the number in the display; it raises 10 to the power of that number.
$g \ LN$	F8 W	Natural logarithm: computes the natural logarithm of the number in the display: the logarithm to the base e .
$e^{\uparrow}x$	W	Natural antilogarithm: calculates the natural antilogarithm of the number in the display.
Trigonometric Functions		
$g \ DEG$	F8 keypad 7	Radians to degrees: sets the display mode to degrees for trigonometric functions as indicated by the absence of the GRAD or RAD annunciator.
$g \ RAD$	F8 keypad 8	Degrees to radians: sets the display mode to radians for trigonometric functions as indicated by the RAD annunciator.
$g \ GRD$	F8 keypad 9	Sets the display mode to grads for trigonometric functions as indicated by the GRAD annunciator.

Continued

Mouse	Keyboard	Function
SIN	[D]	Computes the sine of the number displayed in the X register.
COS	[F]	Computes the cosine of the number displayed in the X register.
TAN	[G]	Computes the tangent of the number displayed in the X register.
g ASIN	[F8] [D]	Computes the arc sine of the number in the display.
g ACOS	[F8] [F]	Computes the arc cosine of the number in the display.
g ATAN	[F8] [G]	Computes the arc tangent of the number in the display.
Hyperbolic Functions		
HYP SIN	[S] [D]	Computes the hyperbolic sine of the number in the display.
HYP COS	[S] [F]	Computes the hyperbolic cosine of the number in the display.
HYP TAN	[S] [G]	Computes the hyperbolic tangent of the number in the display.
g AHYP SIN	[F8] [S] [D]	Computes the inverse hyperbolic sine of the number in the display.
g AHYP COS	[F8] [S] [F]	Computes the inverse hyperbolic cosine of the number in the display.
g AHYP TAN	[F8] [S] [G]	Computes the inverse hyperbolic tangent of the number in the display.
Conversions		
f HMS	[F7] keypad [2]	Hours, minutes, seconds conversion: converts the number in the display from a decimal hours (or degrees) format to an hours (or degrees), minutes, seconds format. Hours (H.h) is converted to H.MMSSs; degrees (D.d) is converted to D.MMSSs.
g H	[F8] keypad [2]	Decimal hour conversion: converts the number in the display from an hours (or degrees), minutes, seconds format to a decimal hours (or degrees) format. Hours (H.MMSSs) is converted to H.h; degrees (D.MMSSs) is converted to D.d.

Continued


Mouse	Keyboard	Function
f RAD	F7 keypad 3	Converts degrees to radians.
g DG	F8 keypad 3	Converts radians to degrees.
Two-Number Operations		
Y↑X	R	Exponential: raises the number in the Y register to the power of the number in the displayed X register. Enter the number (Y) that you want to raise to a power, press Enter , then enter the power, then select $y \uparrow x$.
g %	F8 R	Percent: Calculates what percentage the value in the X register is of the value in the Y register. The percentage appears in the display, the Y register remains the same, and the percentage rate is placed in LAST X. The stack does not change, so any values held in the Z and T registers before selecting g % will remain.
g Δ%	F8 T	Percent difference: Computes the percent of change between the number in the Y register and the number in the displayed X register.
g <-P	F8 I	Polar conversion: converts the rectangular coordinate values in the X and Y registers (x, y) to polar coordinates (magnitude r, angle ϕ).
		
f <-R	F7 I	Rectangular conversion: converts the polar coordinate values stored in the X and Y registers (magnitude r, angle ϕ) to rectangular coordinates (x, y).

Continued

Mouse	Keyboard	Function
f Pyx	[F7] keypad [1]	<p>Permutation: computes the number of possible ordered choices of y different items taken in quantities of x items at a time without repetitions. Uses the following formula:</p> $P_{y,x} = \frac{y!}{(y-x)!}$ <p>All permutation numbers must be non-negative integers. To execute a permutation, enter y, press [Enter], then enter x, then select f Py,x.</p>
g Cyx	[F8] keypad [1]	<p>Combination: computes the number of possible sets of y different items taken in quantities of x items at a time without repetitions or order. Uses the following formula:</p> $C_{y,x} = \frac{y!}{x!(y-x)!}$ <p>All combination numbers must be non-negative integers. To execute a combination, enter y, press [Enter], then enter x, then select g Cy,x.</p>
Statistics		
f Σ	[F7] [X]	<p>Clear statistics registers: clears the contents of the statistics registers (R0-R5) and the stack registers, but not the LAST X register. The keyboard equivalent is [F7] [X].</p>
$\Sigma+$	[&]	<p>Computes statistics on the data in the X and Y registers and stores the results in the statistics storage registers (R0-R5) as follows:</p> <ul style="list-style-type: none"> R0 - number of data points (pairs) accumulated. This value also appears in the display. R 1 - The sum of the x values (Σx). R2 - The sum of squares of the x values (Σx^2). R3 - The sum of the y values (Σy). R4 - The sum of squares of the y values (Σy^2). R5 - The sum of the products of the s and y values (Σxy). <p>Selecting $\Sigma+$ puts the number in the X register into the LAST X register, and the new value in R0 is placed in the X register.</p>

Continued

Mouse	Keyboard	Function
RCL	[M]	Recall statistical collections: recalls the stored value to the displayed X register. Select this key and follow it with the storage register number. Select RCL $\Sigma+$ to recall both the R1 and R3 values. This copies the value in R3 into the Y register and the value in R1 into the displayed X register.
g $\Sigma-$	[F8] [&]	Correct entry: subtracts statistics of numbers in the X and Y registers from the statistics storage registers (R0-R5) to correct statistics collection.
g x	[F8] keypad [0]	Mean: calculates the mean (average) of the x and y values collected using $\Sigma+$.
g s	[F8] keypad [.]	Standard deviation: calculates the standard deviation of the accumulated statistics data according to the following formula: $S_x = \sqrt{\frac{n\sum x^2 - (\sum x)^2}{n(n-1)}}$ $S_y = \sqrt{\frac{n\sum y^2 - (\sum y)^2}{n(n-1)}}$ <p>It computes the standard deviation of the accumulated x values using the data stored in the R0, R1, and R2 registers, then places the result in the X register. The standard deviation of the accumulated y values stored in R1, R3, and R4 is calculated and placed in the Y register. To compute the exact value of the population standard deviation, add the mean of the data to the data (select g x, then $\Sigma+$, then g s).</p>
f L.R	[F7] [&]	Linear regression: calculates the coefficients to the linear equation $y = Ax + B$ after the data pairs have been collected in R0-R5. The slope (A) is placed in the Y register and the "y" intercept (B) is placed in the X register.

Mouse	Keyboard	Function
f y,r	F7 keypad 	Linear estimation and correlation coefficient: places the linear estimate in the X register and the correlation coefficient in the Y register. Linear regression and linear estimation are based on the presumption that the interdependence of the x and y values approximates a straight line. Correlation coefficient is how closely the data "fits" a straight line. It ranges from -1 to +1, with +1 being a straight line with a positive slope and -1 a straight line with a negative slope.

Scientific Calculator Display Errors

If you try to perform a calculation containing an improper operation (for example, dividing by zero), the display shows the word "Error" along with the number 0, 1, or 2.

Error 0: You have entered an improper mathematical operation; for example, calculating the percent difference of zero.

Error 1: You have entered too many values into the storage registers and caused an overflow.

Error 2: You have entered an improper statistical operation.

To clear an error message, press or click any key.

1917
The following is a list of the names of the persons who have been elected to the office of the President of the United States since the year 1800. The names are given in alphabetical order, and the year of election is given in parentheses. The names are given in the order in which they were elected, and the year of election is given in parentheses.

1. George Washington (1789)
2. John Adams (1797)
3. Thomas Jefferson (1801)
4. James Madison (1809)
5. James Monroe (1817)
6. John Quincy Adams (1825)
7. Andrew Jackson (1829)
8. Martin Van Buren (1837)
9. William Henry Harrison (1841)
10. Zachary Taylor (1849)
11. Franklin Pierce (1853)
12. James Buchanan (1857)
13. Abraham Lincoln (1861)
14. Andrew Johnson (1865)
15. Ulysses S. Grant (1869)
16. Rutherford B. Hayes (1877)
17. James A. Garfield (1881)
18. Chester A. Arthur (1881)
19. Grover Cleveland (1885)
20. Benjamin Harrison (1889)
21. William McKinley (1897)
22. Theodore Roosevelt (1901)
23. William Howard Taft (1909)
24. Woodrow Wilson (1913)
25. Warren G. Harding (1921)
26. Calvin Coolidge (1925)
27. Herbert Hoover (1929)
28. Franklin D. Roosevelt (1933)
29. Harry S. Truman (1945)
30. Dwight D. Eisenhower (1953)
31. John F. Kennedy (1961)
32. Lyndon B. Johnson (1963)
33. Richard M. Nixon (1969)
34. Gerald R. Ford (1974)
35. Jimmy Carter (1977)
36. Ronald Reagan (1981)
37. George H. W. Bush (1989)
38. Bill Clinton (1993)
39. George W. Bush (2001)
40. Barack Obama (2009)
41. Donald Trump (2017)

Programmer's Calculator

When Desktop Accessories is memory-resident, you have access to the Programmer's Calculator from any program. The Programmer's Calculator emulates many of the functions contained in the HP-16C calculator, manufactured by Hewlett-Packard.

As the name implies, the Programmer's Calculator functions are intended for people who need to perform programming-related calculations. This section assumes that you are already familiar with computer organization principles and binary operations.

Performing calculations on the Desktop Accessories version is particularly easy if you have used the HP-16C. However, experienced users should read the section noting the differences between the two calculators.

Central Point Software, Inc. does not guarantee that the keystroke sequences and results given are correct or suitable for your purposes. You are responsible for the decisions you make when using the Programmer's Calculator.

You can use the Programmer's Calculator to convert between hexadecimal, binary, octal, and decimal values; isolate bits in word values using logical operators; shift bits left and right; and perform double-precision functions such as multiplication and division. You can also perform arithmetic in 1s or 2s Complement or Unsigned mode.

Here's what you'll find in this chapter:

- **Calculator Differences** explains the differences between an HP-16C and the Desktop Accessories Programmer's Calculator.
- **Starting the Programmer's Calculator** explains the Programmer's Calculator window and function keys.
- **The Calculator Keyboard** explains how to understand the use of the keys in the Programmer's Calculator.
- **Word Size** explains how to define the data unit size.
- **Understanding the Modes** explains f-key mode, 1s Complement mode, 2s Complement mode, and Unsigned mode.
- **Controlling Number and Display Settings** explains the four number bases supported by the Programmer's Calculator.
- **System Flags** explains the meaning of the system flags.

- **Understanding the Registers** explains the stack and data registers.
- **Storing and Recalling Numbers** explains how to store numbers and recall them for later use.
- **Using Floating-Point Numbers** explains how to invoke floating-point format.
- **Performing Basic Arithmetic Functions** explains how to perform basic arithmetic functions.
- **Performing Single-Number Functions** explains how to perform operations on numbers in the X register.
- **Performing Boolean or “Logical” Operations** explains how to perform four logical operations: AND, NOT, OR, and XOR.
- **Performing Double Functions** explains how to perform three double functions: DBX, DB+, and DBR.
- **Masking** explains how to create a left-justified or right-justified mask of 1s.
- **Bit Shifting and Rotation** explains how to use bit shifting and bit rotation to move bits left or right.
- **Setting and Clearing Bits** explains the functions that set or clear bits.
- **Error Conditions** explains how you can receive error messages and what they mean.

Calculator Differences

If you are familiar with the HP-16C, note that the Desktop Accessories version does not share the HP's programming capabilities. Because the Programmer's Calculator has significantly fewer functions, there is no need to assign three functions to each key. The HP-16C has a “g” function key in addition to the “f” key. Only the “f” key is used in the Programmer's Calculator.

Many of the other modifications in the Programmer's Calculator are related to this fundamental difference. In addition, the Programmer's Calculator does not support scientific notation.

The Programmer's Calculator's method of handling floating-point numbers is another fundamental difference between it and the HP-16C. In the HP-16C, floating-point precision is set by pressing f-float and then entering the number of decimal places. In the Programmer's Calculator, precision is set by first entering the number of decimal places, then selecting PRC. The Programmer's Calculator also allows you to initiate floating-point format by simply entering a number containing a decimal fraction.

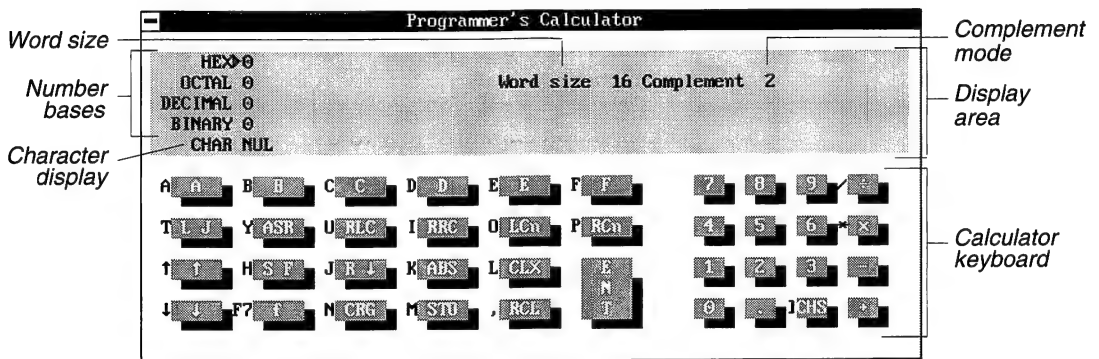
This chapter is not intended as a comprehensive tutorial of the HP-16C calculator. If you want a more complete explanation of how to use the HP-16C, you should obtain a manual for that calculator.

Starting the Programmer's Calculator

- Choose **Calculators ► Programmer's** from the Accessories menu in PC Tools Desktop.

The Programmer's Calculator Window

If you have an HP-16C calculator, you recognize the similarity between it and the Programmer's Calculator provided in Desktop Accessories.



The Programmer's Calculator window has two parts:

- The calculator keyboard (lower screen)
- A display area (upper screen) containing the following parts:

Number Bases: Lists the four number bases supported by the Programmer's Calculator.

Character Display: Displays the character equivalent of the low-order byte of a hexadecimal number. The character's ASCII equivalent is displayed in other bases.

NOTE The following keyboard keys do not affect the CHAR display — (F1), (F2), (F3), (F4), (F6), (F9), (F10), (F11), (F12), (Caps Lock), (Shift), (Ctrl), (Alt), (Prt Sc), (Scroll Lock), (Num Lock), (↑), (↓), (Pause), and (5) on the number pad.

Word Size: Indicates the current word size (the range is 1 to 64 bits and the default is 16).




Complement Mode: Shows whether Complement 1, 2, or Unsigned mode is selected.

System Flags: May be any of three primary system flags that are applicable.


Annunciators: Indicates a specific situation; for example, “P” for pending flag.



Function Keys

The Programmer’s Calculator uses the following function keys in addition to the standard Desktop Accessories keys described in the *Starting Desktop Accessories* chapter:

Function Key	Description
 Stack	Displays the stack register window.
 Data	Displays the data register window.
 Func	Invokes f-key functions when pressed before the key assigned to a function.

The Calculator Keyboard

The Programmer’s Calculator’s keyboard requires the use of several letter and number keys that correspond to keys on your computer keyboard. You can either enter keystrokes directly or you can use a mouse to click a particular number or function. For example, pressing  or clicking on ABS yields the absolute value of a number.

To enter numbers in any of the number bases, select the desired number base by either clicking it with the mouse or using  and . You can enter numbers either from the top row of keys on the keyboard or from the number pad. If you are working in the hexadecimal number base, you can also use the A-F letter keys.

Using the Keyboard in Regular Mode

As in the other calculator sections in this manual, calculator keyboard keys, or buttons, are referred to by their functional names. Functions in regular mode are described first, followed by f-key functions. This section is not intended as a comprehensive review of the Programmer’s Calculator functions; those topics are covered more thoroughly later in the chapter.

If you are using a mouse, click the specified function key on the screen. For example, if want to left justify a word, click the button displaying LJ.

Press	To Perform Function
t	L J (left justify)
y	ASR (arithmetic shift right)
u	RLC (rotate left through carry)
i	RRC (rotate right through carry)
o	LCn (rotate left through carry n number of bits)
p	RCn (rotate right through carry n number of bits)
h	S F (set flag)
j	R ↓ (roll down)
k	ABS (absolute value)
l	CLX (clear X)
n	CRG (clear register)
m	STO (store number)
,	RCL (recall number)
]	CHS (change sign)

Using the Keyboard f-Key Functions

To use the mouse when performing f-key functions, first click the f key in the lower left of the calculator keyboard, then click the button that contains the desired function. When using keystrokes, press and release **F7** before the pressing the key assigned to the function.

Press F7 then	To Perform Function
a	S L (shift left)
b	S R (shift right)
c	R L (rotate left)
d	R R (rotate right)
e	RLn (rotate left n)
f	RRn (rotate right n)
7	MKL (mask left)
8	MKR (mask right)
9	RMD (remainder after division)
/	XOR (eXclusive OR)
t	# B (number of bits)

Press	To Perform Function
y	DBR (double remainder)
u	DB÷ (double divide)
i	DBX (double multiply)
o	\sqrt{x} (square root)
p	1/X (reciprocal)
4	S B (set bit)
5	C B (clear bit)
6	ZER (leading zeros)
*	AND (logical product)
î	RST (restore start-up state)
H	C F (clear flag)
J	R ↑ (roll up)
K	X↔Y (exchange X and Y registers)
L	BSP (backspace)
‰	LST (last X register)
1	1 s (1s complement mode)
2	2 s (2s complement mode)
3	UNS (unsigned mode)
-	NOT (logical operation)
N	CPX (clear prefix)
M	WSZ (word size)
,	PRC (precision)
+	OR (logical sum)

Word Size

Words (data units) up to 64 bits long are supported in the Programmer's Calculator. The default word size is 16 bits. To define a word size, enter a number between 1 and 64, then select the WSZ function.

If you have defined a word size that limits your ability to enter a higher word size, use the RST (restore) function to reset the Programmer's Calculator to its startup state, which sets the word size to the default of 16.

NOTE Reducing a word size does **not** truncate words stored in the data storage registers, as in the HP-16C. Instead, words retain their original values.

Understanding the Modes

f-Key Mode

Most “keys” on the Programmer’s Calculator perform more than one function. Each key is labeled with the function it performs, and these labels change according to the calculator mode. The letters to the left of the keys on the screen indicate the function’s keyboard equivalent.

When you click the f key or press **F7**, the calculator enters f-key mode. The key labels change to indicate their functions in this mode and an “f” appears in the display. To clear the “f” from the display and return to regular mode, press **N** (CPX).

Complement and Unsigned Modes

There are three forms of number representation in the Programmer’s Calculator: 1s Complement mode, 2s Complement mode, and Unsigned mode. The default setting is 2s Complement mode. The current mode appears on the display to the right of the word size in the previous screen illustration.

Controlling Number and Display Settings

The four number bases supported by the Programmer’s Calculator are listed as HEX, OCTAL, DECIMAL, and BINARY. The current or “active” number base is indicated by an arrow, although corresponding numbers appear in all bases.

For example, if you perform an addition operation in binary mode, the equivalent sums in hexadecimal, octal, and decimal modes also appear.

To select different number bases, use **↑** and **↓** or click the desired number base with the mouse. All numbers appear in all bases; however, if a number with a fraction is entered using the decimal base, only the integer part of the number appears in other bases.

To delete entries one digit at a time, use **Backspace** or the BSP function. Notice that this function only works if an entry has not been terminated. To delete entire entries, use the CLX function.

System Flags

The Programmer’s Calculator has three primary system flags, and a flag that prompts you for further input (P or Pending Flag).

Flag 3: Z (Leading Zero Control)

Flag 3 manages the display of leading zeros. Setting this flag displays zeros to the left of the highest nonzero digit. Leading zeros are suppressed when this flag is not set. You can set the Leading Zero Control flag by selecting the ZER function or by selecting SF (Set Flag) and then typing the flag number (3). Clear the Leading Zero Control flag by selecting the ZER function again or by selecting CF (Clear Flag) and then typing the flag number (3).

NOTE *Leading zeros are always suppressed in the decimal number base.*

Flag 4: C (Carry Condition)

Flag 4 is triggered by a carry-over number remaining from an arithmetic operation, like division, or from advanced programming calculations, like bit shifting or rotation. Clear the Carry Flag by selecting CF (Clear Flag), then typing the flag number (4).

Flag 5: G (Greater-than-the-Range)

Flag 5 triggers whenever the result of a calculation cannot be represented in the current word size and complement mode. When a result is out-of-range, as many of the lower bits of the full answer as can fit in a particular word size are returned.

For example, assume you are working in the decimal number base, with the word size set at 16, and in 2s Complement mode. You enter 52,400 and attempt to multiply by 2 ($52,400 \times 2$). The Programmer's Calculator returns -26272 (lower bits) and triggers the "G" annunciator, indicating that the full answer is out-of-range.

P Flag: Pending or Prefix

The Pending flag activates after executing an operation that requires further input. Operations prompting this annunciator include STO, RCL, and CF. Clear the P flag by entering the number of a register for either a Store or Recall, by entering the number of a flag to clear, or by selecting the CPX (Clear Prefix).

Understanding the Registers

The Programmer's Calculator uses two different types of registers to manipulate and store the results of calculations: stack and data registers. To view the contents of a register, choose the register you want to see from the Register Display menu.

The Stack Registers

The memory stack registers, along with **Enter**, store and recall intermediate results for your calculations. The stack registers are connected in a way that allows you to do lengthy calculations easily by stacking intermediate results.

The number in the display is the same as the number in the X register. Typing in a number or executing an operation causes the numbers already in the stack to move up one register, remain in the same register, or drop, depending on the type of operation you are performing. Numbers in the stack are available on a last in, first out basis.

R↓ and **R↑** roll the contents of the stack registers down or up one register. No values are lost. **X↔Y** exchanges the numbers in the X and Y registers.

When an operation is performed, a copy of the number in the X register before the operation was performed is also stored in the LAST X register. Selecting **ENTER** places a copy of the contents of the LAST X register into the X register. This feature saves you from re-entering numbers you want to use again and can assist in error recovery.

The Data Registers

Storing and recalling numbers involve the displayed X register and the data storage registers.







Storing and Recalling Numbers

Numbers can be stored in memory for later use with the **STO** (Store) and **RCL** (Recall) keys. The **STO** key copies the number in the displayed X register and places it in the specified storage place holder. Select **STO** (or press **M**) and then press a numeral key (or click it with the mouse) to place the number from the display into the specified place holder. You can place up to 10 numbers in memory by entering them in the 0 to 9 place holders. You can view the storage registers to see which place holder the stored number is in by choosing **D** from the Register Display menu or pressing **F6**. Selecting the **RCL** key and then pressing the specified place holder numeral brings back the stored value to use even when other calculations have been performed in the interim.

A copy of the stored number remains in the storage register until a new number is stored there or until the storage registers are cleared. Clear a specific register by storing a value of 0 in that register. Select **CRG** (or press **N**) to clear a register in the Programmer's Calculator.

NOTE When using either the stack or data registers, the current number base appears at the bottom of the register dialog box.

The STO, RCL, +, -, *, and ÷ functions use the number in the X register to perform arithmetic on the contents of a specified storage register *n*. The key sequence is STO followed by an arithmetic function key, followed by the register address (0 through 9). The result of any storage register operation is placed in the specified data storage register.



Mouse	Keystrokes	Display	What it Does
6 STO 1	6  1	6.0000	Stores 6 in R1.
2 STO ÷ 1	2   1	2.0000	Divides number in R1 (6) by 2.
RCL 1	 1	3.0000	Recalls copy of new number in R1.
4 STO * 1	4   1	4.0000	Multiplies number in R1 (6) by 4.

Using Floating-Point Numbers



You can invoke floating-point format in the Programmer’s Calculator by selecting the PRC (precision) function or by entering a number that contains a decimal fraction. When in floating-point mode, the Programmer’s Calculator automatically changes the word size to 64. The word size reverts to its former state if the precision is set to 0. When precision is set at 0, any decimal fraction part of a number is truncated in the Programmer’s Calculator stack register.

NOTE The Programmer’s Calculator is capable of storing up to 18 significant digits in the maximum word size of 64. Thus, even though only two decimal places may appear on the display, up to 18 decimal places are retained internally.

Setting the Precision

1. Enter the number of decimal places you want the Programmer’s Calculator to display.
2. Select the PRC function (from the keyboard, press  ).
The corresponding number of decimal places appears on the display.

Eliminating the Precision

1. Enter 0.
2. Select the PRC function (from the keyboard, press  ).
The decimal places are eliminated.

Performing Basic Arithmetic Functions

The Programmer's Calculator uses Reverse Polish Notation (RPN) to perform calculations. To perform calculations, you need to enter the number for the calculation first, and then enter the operator for the calculation. Your answer appears in the display after you press the function key. As you enter numbers, they go into memory into a stack register — the last number entered becomes the bottom entry of the stack. When the operation is performed (by pressing the function key), the operator acts upon one or more of the bottom entries in their order of entry and puts the result on the stack for the next calculation.

Remember that the Programmer's Calculator displays entries and solutions in all four number bases so you can compare values.

Performing Single-Number Functions

Single-number functions apply operations only to the entry in the X register. Entries do not have to be terminated to apply single-number functions.

Function	Description
\sqrt{x}	Finds the square root of a number.
1/X	Finds the reciprocal of a number.
CHS	Changes the sign by forming the 1s or 2s Complement of the number in the X register.
ABS	Converts the number in the X register to its absolute value, forming the 1s or 2s Complement of a negative number.
#B	Counts the number of 1 bits in the X register and returns that value to the X register.

Performing Boolean or “Logical” Operations

The Programmer’s Calculator supports four logical operators: AND, NOT, OR, and XOR.

Function	Description
OR	Compares each corresponding bit in two words. Returned bits are 0 only if both corresponding bits are 0.
XOR	Compares each corresponding bit in two words and returns a 1 only if corresponding bits are not alike. A 1 occurring in the result signifies that the bits are different.
AND	The same as OR, except that AND searches for common 1s.
NOT	Inverts or reverses the values of all bits in the X register. It is the same as forming the 1s Complement (using CHS in 1s Complement mode).

Performing Double Functions

The Programmer’s Calculator supports three double functions:

- DBX is used to extract the precise calculation of a product that is double the current word size.
- DB÷ is used to extract the precise calculation of a quotient that is double-word size.
- DBR is used to extract the precise calculation of a remainder that is double-word size.

These functions are typically used in the binary number base, but they can also be applied to numbers in hexadecimal and octal mode. Because of the nature of the conventions, be sure to define a compatible word size — a multiple of four for hexadecimal numbers and a multiple of three in octal mode.

The double functions work similarly to the AX and DX registers in IBM personal computers, where the DX register stores high-order bits and the AX register stores low-order bits.

Function	Description
DBX	Multiplies two single-word entries in the X and Y registers to yield double-word results in the same registers. The Programmer's Calculator returns right-justified values, with the most-significant bits returned to the X register and the least-significant bits returned to the Y register.
DB÷	Determines the quotient of a dividend of double-word size in the Y and Z registers (with the most-significant bits in the Y register) divided by a single-word divisor in the X register.
DBR	Double Remainder is much like Double Divide, except that it returns the remainder to the X register instead of the quotient.

Masking

Creates a left-justified or right-justified mask of 1s. The Programmer's Calculator uses the number in the X register to determine the size of the mask. The X register stores the mask pattern after a mask operation has been performed. The current word size is the limit of the mask: for example, if you are working in a word size of 4, your mask could be no larger than four bits.

NOTE In the following two examples, Leading Zero Control should be on.

- MKL Creates a left-justified mask of 1s.
- MKR Creates a right-justified mask of 1s.

Bit Shifting and Rotation

Use the bit shifting and bit rotation functions to move bits left or right. What happens to the bits after they have been moved? It depends on the type of shift or rotate performed — bits can be left justified, shifted left or right, rotated left or right through the Carry flag, or rotated in groups.

- LJ Left justifies a bit pattern within its word size. Selecting this function lifts the stack registers, then inserts the left-justified word into the Y register. The "count," or number of bit shifts needed to left justify the word, is inserted into the X register.
- SL Shifts all of the bits of a word in the X register one bit to the left and inserts a 0 on the right side of the number. Bits shifted out of a word are shifted into a carry bit, writing over the previous state of the carry bit.

SR	Shifts all of the bits of a word in the X register one bit to the right and inserts a 0 on the left side of the number. Bits shifted out of a word are shifted into a carry bit, writing over the previous state of the carry bit.
RL	Rotates the bits in the X register one bit to the left.
RR	Rotates the bits in the X register one bit to the right.
RLC	Rotates the bits in a word left through the carry bit. The Programmer's Calculator performs this function by moving the leftmost bit into the carry bit, then moving the original carry bit to the right end of the word.
RRC	Rotates the bits in a word right through the carry bit. The Programmer's Calculator performs this function in the same manner as the previous function (RLC).
RLn	Rotates multiple bits in a word to the left. The Programmer's Calculator uses the value in the X register as n and applies that to the bit pattern in the Y register.
RRn	Rotates multiple bits in a word to the right in the same manner as RLn.
LCn	Performs the same function as RLn except that bits are rotated through the carry bit.
RCn	Performs the same function as RLn except that bits are rotated through the carry bit.

Setting and Clearing Bits

The Programmer's Calculator has two functions that allow you to set individual bits to 1 or 0: SB (Set Bit) and CB (Clear Bit). To perform these functions, the number containing the digits to be set or cleared should be in the Y register and the number specifying the bit to be set or cleared should be in the X register.

CB Clears a 1 bit to 0.

SB Sets a 0 bit to 1.

NOTE Individual bits are numbered from right to left, beginning with bit 0. For example, in the hexadecimal value 1011, bit 0 is a 1, bit 1 is a 1, bit 2 is a 0, and bit 3 is a 1.

Error Conditions

Entering an incorrect value in a particular number base triggers the error message "Illegal digit for this number base." To clear the message, simply enter an acceptable value or switch number bases. Such errors are more likely to occur when switching back and forth between number bases, so be aware of the current number base.

If you attempt any operation containing an incorrect option (for example, if you type "2" into the binary number base display), the Programmer's Calculator displays one of the following error messages at the bottom of the display area.

Error 1: Improper Mathematical Operation

- Attempting to obtain the square root (\sqrt{x}) of a negative number.
- Attempting to obtain the inverse ($1/X$) of 0.
- Dividing by 0.

Error 2: Illegal Digit for this Number Base

- Entering A, B, C, D, E, or F while in any number base other than hexadecimal.
- Entering 8 or 9 while in the octal number base.
- Entering any digit other than 0 or 1 while in the binary number base.

Error 3: Decimal Already Entered

- Entering a decimal point after one has already been entered.

Error 4: Improper Flag Number

- Attempting to set or clear a flag by an incorrect number. For example if you set Flag 3 and try to clear it by typing CF-1, the error message is triggered.

Error 5: Improper Register Number

- Entering a nonexistent storage register number.

Error 6: Register Contents Too Large for Word Size

- Attempting to recall register contents that were originally stored while working in a larger word size.

Utilities

Desktop Accessories includes special utility programs to modify some of the Desktop Accessories settings.

Here's what you'll find in this chapter:

- **Starting Utilities** explains how to choose the utility function you want.
- **Selecting the Hotkeys** explains how to reassign the hotkeys.
- **Displaying the ASCII Table** explains how to display an ASCII character table that includes IBM and other special graphics characters.

Starting Utilities

1. Choose **Utilities** from the Desktop Accessories menu.
2. Select the utility to use from the Utilities submenu.

Selecting the Hotkeys

A *hotkey* is a specially designated key or key sequence used to activate a resident program or a resident function. You can use a hotkey for the following:

- **To open or exit Desktop Accessories.** When Desktop Accessories is resident, you can open or exit from Desktop Accessories by pressing the designated hotkey from the DOS prompt or from any application. When Desktop Accessories starts as a standard application, you can use the hotkey to exit from Desktop Accessories. Exiting from Desktop Accessories with the hotkey saves the current open application windows. When you start Desktop Accessories again with the hotkey, the same application windows are open in the same locations as when you exited. The default hotkey sequence is **Ctrl** **Spacebar**.
- **To paste text from the Clipboard.** You can use the Clipboard paste function to insert the contents of the Clipboard at the DOS prompt. When Desktop Accessories is memory-resident, you can also paste from the Clipboard into any application. See the *Clipboard* chapter in this part for instructions on using the hotkey for the Clipboard paste function. The default hotkey for the paste function is **Ctrl** **Ins**.

- **To copy text into the Clipboard.** The Clipboard copy function transfers selected information from the screen to the Clipboard. When Desktop Accessories is memory-resident, you can copy to the Clipboard from any application. See the *Clipboard* chapter for instructions on using the hotkey for the Clipboard copy function. The default hotkey for the copy function is **Ctrl Del**.
 - **To use the Autodialer.** When Desktop Accessories is memory-resident, you can activate the Autodialer to dial a phone number appearing on the screen. The Autodialer default hotkey is **Ctrl O**.
1. Choose **Utilities ► Hotkey Selection** from the Desktop Accessories menu.
 2. Select the hotkey you want to change in the Hotkey Selection dialog box.
 3. Press the key sequence you want to use as the hotkey.
 4. Click the close box or press **Esc** to save the new hotkey.

NOTE When Desktop Accessories is memory-resident, it cannot be accessed with the hotkey combination while Microsoft Windows is running. When using Microsoft Windows, open Desktop Accessories as a standard application.

Displaying the ASCII Table

The ASCII (American Standard Code for Information Interchange) table is a chart associating a number with a letter, number, punctuation mark, or control character. Press **F1** for information about table components.

NOTE Desktop Accessories remaps some ASCII graphics characters. These remapped characters appear in the ASCII table unless you start Desktop Accessories with the /NF command-line option. See Part 3 Data Recovery and System Utilities in Volume 1 for information on the /NF option.

Ascii Table			Ascii Table		
HEX	DEC	CTL CODE	HEX	DEC	HEX DEC
00		^@ NUL	20	32	30 0 48
01	1	^A SOH	21	33	31 1 49
02	2	^B STX	22	34	32 2 50
03	3	^C ETX	23	35	33 3 51
04	4	^D EOT	24	36	34 4 52
05	5	^E ENQ	25	37	35 5 53
06	6	^F ACK	26	38	36 6 54
07	7	^G BEL	27	39	37 7 55
08	8	^H BS	28	40	38 8 56
09	9	^I HT	29	41	39 9 57
0A	10	^J LF	2A	42	3A : 58
0B	11	^K VT	2B	43	3B ; 59
0C	12	^L FF	2C	44	3C < 60
0D	13	^M CR	2D	45	3D = 61
0E	14	^N SO	2E	46	3E > 62
0F	15	^O SI	2F	47	3F ? 63

ASCII tables with and without CTL code

Finding a Character in the Table

1. Select **ASCII Table** from the Accessories menu in PC Tools Desktop.
2. Use one or more of the following procedures:

- ▶ Press any character key when the table appears.

The portion of the table showing the specified ASCII code appears. For example, if you press **D** the table displays decimal character number 68. If you want to find a control character, press **Ctrl** and the desired key; for example, if you press **Ctrl A** the table displays decimal character number 1.

- ▶ Press **↑**, **↓**, **Pg Up**, or **Pg Dn** to move through the symbols in the table.
- ▶ Scroll through the table using the scroll bar.

Autodialer

The Autodialer allows you to dial a phone number automatically that appears on your computer screen. To use the Autodialer application, you must install Desktop Accessories memory-resident and have a Hayes-compatible modem attached to your PC. The Autodialer dials any phone number in a Desktop Accessories application, in another application (such as a word-processor document or a spreadsheet), or entered at the DOS prompt.

Using the Autodialer

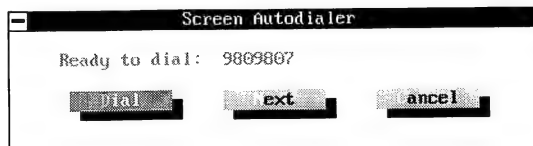
1. Choose **Execution ► Autodialer** from the Configure menu in PC Tools Desktop.

Use the instructions in the “Configuring the Autodialer” section of the *Databases* chapter.

2. Press the Autodialer hotkey sequence (the default is **Ctrl** **O** the letter O, not zero).

The Autodialer scans all information on the screen and recognizes three or more consecutive numbers as a valid telephone number. The Autodialer accepts spaces, dashes, parentheses, hyphens, and “x” (for extensions). It also recognizes these characters in a phone number:

- **P**: Indicates you have a rotary (pulse) dial phone.
- **T**: Indicates you have a touch-tone phone.
- **,** (comma): Pauses two seconds before continuing to dial. If you want a longer pause, use more commas. This is useful if you have to dial 9, for example, to get a line outside a main switchboard.
- ***** and **#**: These are accepted characters for phone numbers.



If a possible phone number cannot be located, your computer beeps to notify you of the problem.

3. Choose **Dial** to dial the phone number that appears in the box.

If you do not want to dial the displayed phone number, choose **Next** to search for the next number on the screen. If no additional series of phone numbers can be found, the dialog box disappears and you can continue working.

Desktop Accessories Command-Line Options

In addition to the command-line options described in *Part 4 General Reference* in Volume 1, the following options can be added to the command line at the DOS prompt when executing Desktop Accessories.

To run Desktop Accessories from the DOS prompt, use the syntax:

```
DA [filename.ext] [options...]
```

Option	Description
<i>filename.ext</i>	Starts Desktop Accessories and opens a Notepads window containing the specified file.
/?	Displays a help screen listing the Desktop Accessories command-line options.
/CS	Clears the screen and displays calendars as a background when Desktop Accessories is memory-resident. When Desktop Accessories is running stand-alone, the calendar background appears automatically. NOTE To use the Clipboard application to cut and paste to an underlying application using the menus, install Desktop Accessories without the /CS option.
/C3 or /C4	Tells the Autodialer and the telecommunications programs which serial port your modem is connected to. Because COM3 and COM4 are not standard, they must be defined on the command line as /C3 = IRQ,Base Port Address /C4 = IRQ,Base Port Address For example, /C3=4,3E8. Refer to your modem manual for the Interrupt Request Level (IRQ) and Base Port Address. IRQ1 through IRQ7 are supported. This option is not necessary on PS/2s.

Continued

Option	Description
/DQ	<p>When Desktop Accessories is memory-resident and you press Ctrl Spacebar to launch it, memory being used by the currently running program is saved in a disk file before Desktop Accessories loads its program file into memory. This takes time. Use this option to make Desktop Accessories load faster, it does not save memory when you launch it with the hotkey combination from the DOS prompt because there is no program running.</p> <p>This option takes effect <i>only</i> when the Desktop Accessories hotkey combination is pressed at the DOS prompt.</p> <p>If you experience problems when you launch Desktop Accessories with the hotkey combination from the DOS prompt, install Desktop Accessories with the /DQ option to disable the quick-load capability.</p>
/KB: <i>text</i>	<p>Allows you to launch Desktop Accessories applications from the command-line, by using text characters from the Desktop Accessories menu quick keys. For example, /KB:FC launches the Financial Calculator. This option is especially useful if you use the Task Switcher.</p>
/MM	<p>When you exit Desktop Accessories using the hotkey combination, Desktop Accessories remembers which application windows you had open. The next time you open Desktop Accessories, the same windows are open just as you left them. You can bypass this feature by using the /MM command-line option.</p> <p>For example, if you have a Databases and a Notepads window open in Desktop Accessories and press Ctrl Spacebar to exit the program, when you type DA Enter Desktop Accessories is launched and the same windows are open. If you instead type DA /MM Enter Desktop Accessories is launched with no application windows open. Exiting from Desktop Accessories again and typing DA Enter launches Desktop Accessories with the Databases and Notepads windows open again.</p>

Continued

Option	Description
<code>/Odrive</code>	<p>Selects a different drive to contain the Desktop Accessories overlay files. Normally, Desktop Accessories uses the default drive (the drive Desktop Accessories is executed from) to build its overlay files (DESKTOP.OVL, DESKTOP.IMG and DESKTOP.THM). The <code>/O</code> options forces Desktop Accessories to place its overlay files on the drive specified in the <code>/O</code> option (for example, a RAM disk). Building the overlay files on a RAM disk may help speed up program execution. This option may also be used to disable the use of expanded memory for overlay files by explicitly directing the overlay files to another device.</p> <p>Use this option if you experience problems using Desktop Accessories with expanded memory.</p> <p>If you are directing the Desktop Accessories files to a RAM disk, you need to have at least 450K of memory. If you plan to direct both Desktop Accessories and PC Tools Desktop to a RAM disk, you need a minimum of 1MB of memory. There must be enough space available on the RAM disk to hold the overlay files. If there is not enough space, the default drive is used.</p>
<code>/R</code>	<p>Starts Desktop Accessories as a memory-resident application, allowing you to launch Desktop Accessories while other programs are running by pressing the hotkey combination (Ctrl Spacebar).</p> <p>This loads Desktop Accessories along with SWAPDT. This utility allows you to minimize the amount of conventional memory used by Desktop Accessories when it is memory-resident. SWAPDT accomplishes this by swapping the resident portion to expanded or extended memory or to disk if no such memory is available. When used in conjunction with a memory manager such as MS-DOS Version 5's EMM386, QEMM, or 386MAX, the use of conventional memory can be eliminated completely by loading SWAPDT into high memory.</p> <p>NOTE When Desktop Accessories is installed memory-resident, it does not function while Microsoft Windows is running. When using Microsoft Windows, open Desktop Accessories as a standard application.</p>

Continued

Option	Description
/RA	<p>Starts Desktop Accessories as a memory-resident application and automatically displays the Appointment Scheduler with the day's schedule and To-Do List. At this point, Desktop Accessories is fully functional. If you do not have an active Appointment Schedule file with appointments set, Desktop Accessories is loaded as if you had installed it with the /R option alone.</p> <p>If Desktop Accessories is installed in your AUTOEXEC.BAT file with the /RA option, nothing that follows it executes until you exit from Desktop Accessories. Therefore, you should make this the last entry in the file.</p>
/?	Displays help for the command-line options.
/VIDEO	Displays a help screen listing the PC Tools video and mouse command-line options.

Master Index to Volumes 1 and 2

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PHYSICS DEPARTMENT

PHYSICS 311

LECTURE 10

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